



PROVINCE OF THE  
EASTERN CAPE  
EDUCATION

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DIRECTORATE:  
CURRICULUM FET PROGRAMMES  
LESSON PLANS  
TERM 3  
MATHEMATICS  
GRADE 10

## 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 10****LESSON PLAN 1****TIME : 13 ½ HOURS**

Context: Mathematical and Engineering

Link with previous lesson: Trigonometric ratios, linear and other forms of graphs

KNOWLEDGE (K): Trigonometric functions

SKILLS (S): Plotting &amp; drawing of graphs, Generalise the effects of parameters

VALUES (V): Appreciation of use graphs in real life situations

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>	
10.1.1 Identify rational numbers and convert between terminating or recurring decimals		10.2.1 a) Demonstrate the ability to work with various types of functions, including those listed in the following Assessment Standard. (b) Recognise relationships between variables in terms of numerical, graphical, verbal and symbolic representations and convert flexibly between these representations (tables, graphs, words and formulae).	√	10.3.1 Understand and determine the effect on the volume and surface area of right prisms and cylinders, of multiplying any dimension by a constant factor k.		10.4.1 Collect, organize and interpret data determine: measures of central tendency measures of dispersion: Represent data effectively, choosing appropriately from:	
10.1.2 Simplify expressions using the laws of exponents		10.2.2 Generate as many graphs as necessary, initially by means of point-by-point plotting, supported by available technology, to make and test conjectures and hence to generalise the effects of the parameters $a$ and $q$ on the graphs of functions including:	√	10.3.2 Through investigations, produce conjectures and generalisations			
10.1.3 Investigate number patterns		10.2.3 Identify characteristics as listed below and hence use applicable characteristics to sketch graphs of functions	√	10.3.3 Represent geometric figures on a Cartesian co-ordinate system, and derive and apply, for any two points			

10.1.4 Use simple and compound growth formulae		10.2.4 Manipulate algebraic expressions		10.3.4 Investigate, generalise and apply the effect of the following transformations of the point (x; y):			
10.1.5 Demonstrate an understanding of the implications of fluctuating foreign exchange rates		10.2.5 Solve: (a) linear equations (b) quadratic equations by factorisation (c) exponential equations (d) linear inequalities in one variable and illustrate the solution graphically		10.3.5 Understand that the similarity of triangles is fundamental to the trigonometric functions			
10.1.6 Solve non-routine, unseen problems.		10.2.6 Use mathematical models to invest problems that arise in real-life contexts:		10.3.6 Solve problems in two dimensions by using the trigonometric functions			
		10.2.7 Investigate the average rate of change of a function between two values of the independent variable,					
TEACHING ACTIVITIES		LEARNERS ACTIVITIES		RESOURCES		ASSESSMENT	DAT E CO MPL ETE D
<p>Activity 1</p> <p>Trigonometric functions</p> <p>Learners will be given a worksheet with three tables from which to draw trigonometric graphs with interval <math>[0^\circ ; 360^\circ]</math> on their exercise books or graph books. They will be given guidance</p> <p>Teaching Methods</p> <p>Discussion, discovery, observation and question and answer</p>		<p>Learners will complete the worksheets or graph papers to generate graphs of : <math>y = \sin x</math> <math>y = \cos x</math> <math>y = \tan x</math> in the interval <math>[0^\circ ; 360^\circ]</math> and to determine the different characteristics of these graphs e.g.</p> <p>(a) domain and range; (b) intercepts with the axes; (c) turning points, minima and maxima; (d) asymptotes; (e) shape and symmetry; (f) periodicity and amplitude; (g) average gradient (average rate of change);</p>		Worksheet, graph papers, textbooks		<p>Class work, homework,</p> <p>Memo and checklist</p> <p>Peer, self and educator</p>	

	(h) intervals on which the function increases/decreases; (i) the discrete or continuous nature of the graph.			
<p>Activity 2</p> <p>Trig functions</p> <p>Teacher provides worksheets and gives guidance to learners. Graph papers are given to generate as many graphs as necessary of the following functions:</p> <p><math>y = a \sin x + q</math></p> <p><math>y = a \cos x + q</math></p> <p><math>y = a \tan x + q</math></p> <p>with interval <math>[0^\circ ; 360^\circ]</math> and to determine the effect of <b>a</b> and <b>q</b> on the functions. Learners are required to graphically determine the answers to trigonometric questions e.g. shape, co-ordinates, shifting of the graphs as <b>a</b> and <b>q</b> change</p> <p>Teaching Methods</p> <p>Discussion, discovery, observation and question and answer</p>	<p>Learners will complete the worksheets and graph papers to generate graphs of</p> <p><math>y = a \sin x + q</math></p> <p><math>y = a \cos x + q</math></p> <p><math>y = a \tan x + q</math></p> <p>with interval <math>[0^\circ ; 360^\circ]</math> and to determine the effect of <b>a</b> and <b>q</b> on the functions. Learners are required to graphically determine the answers to trigonometric questions e.g. shape, co-ordinates, shifting of the graphs as <b>a</b> and <b>q</b> change</p>	Worksheet, graph papers, calculator, textbooks	<p>Class work, homework,</p> <p>Memo and checklist</p> <p>Peer, self and educator</p>	
<p>Activity 3</p> <p>Mixed Trig examples</p> <p>Educator give learners</p>	<p>Learner will have to identify characteristics of the graphs, use applicable characteristics to sketch</p>	Worksheet, graph papers, calculator, textbooks	<p>Class work, homework,</p> <p>Memo and checklist</p>	

<p>mixed trigonometric graphs to identify characteristics of the graphs, use applicable characteristics to sketch graphs of functions</p> <p>Teaching Methods</p> <p>Discussion, discovery, observation and question and answer</p>	<p>graphs of functions including:</p> <p>(a) domain and range;  (b) intercepts with the axes;  (c) turning points, minima and maxima;  (d) asymptotes;  (e) shape and symmetry;  (f) periodicity and amplitude;  (g) average gradient (average rate of change);  (h) intervals on which the function increases/decreases;  (i) the discrete or continuous nature of the graph.</p>		Peer, self and educator	
Homework: Exercises given from selected textbooks and various resource material				
Enrichment/Expanded Opportunities: Drawing of various trigonometric graphs. Application of knowledge in solving Physics Problems e.g. waves				
Teacher Reflections:				

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**SUBJECT: MATHEMATICS****GRADE 10****LESSON PLAN 2****TIME : 4½ HOURS**

Context: Traditional aspects involving geometrical shapes &amp; use o of trigonometry

Link with previous lesson: Geometrical shapes &amp; trigonometric ratios

KNOWLEDGE (K): Shapes used in traditional huts, pyramid, engineering etc, Contributions of mathematicians in both geometry and trigonometry

SKILLS(S): Research skills, writing and presenting skills VALUES (V): Appreciation of the value of the history of mathematics

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>	
10.1.1 Identify rational numbers and convert between terminating or recurring decimals		10.2.1 a) Demonstrate the ability to work with various types of functions, including those listed in the following Assessment Standard. (b) Recognise relationships between variables in terms of numerical, graphical, verbal and symbolic representations and convert flexibly between these representations (tables, graphs, words and formulae).		10.3.1 Understand and determine the effect on the volume and surface area of right prisms and cylinders, of multiplying any dimension by a constant factor k.		10.4.1 Collect, organize and interpret data determine: measures of central tendency measures of dispersion: Represent data effectively, choosing appropriately from:	
10.1.2 Simplify expressions using the laws of exponents		10.2.2 Generate as many graphs as necessary, initially by means of point-by-point plotting, supported by available technology, to make and test conjectures and hence to generalise the effects of the parameters $a$ and $q$ on the graphs of functions including:		10.3.2 Through investigations, produce conjectures and generalisations			
10.1.3 Investigate number patterns		10.2.3 Identify characteristics as listed below and hence use applicable characteristics to sketch graphs of		10.3.3 Represent geometric figures on a Cartesian co-ordinate system, and derive and apply, for any two points			

		functions					
10.1.4 Use simple and compound growth formulae		10.2.4 Manipulate algebraic expressions		10.3.4 Investigate, generalise and apply the effect of the following transformations of the point (x; y):			
10.1.5 Demonstrate an understanding of the implications of fluctuating foreign exchange rates		10.2.5 Solve: (a) linear equations (b) quadratic equations by factorisation (c) exponential equations (d) linear inequalities in one variable and illustrate the solution graphically		10.3.5 Understand that the similarity of triangles is fundamental to the trigonometric functions			
10.1.6 Solve non-routine, unseen problems.		10.2.6 Use mathematical models to invest problems that arise in real-life contexts:		10.3.6 Solve problems in two dimensions by using the trigonometric functions			
		10.2.7 Investigate the average rate of change of a function between two values of the independent variable,		10.3.7 Demonstrate an appreciation of the contributions to the history of the development and use of geometry and trigonometry by various cultures through a project	√		
TEACHING ACTIVITIES		LEARNERS ACTIVITIES		RESOURCES		ASSESSMENT	DAT E CO MPL ETE D
Activity 1  Contributions of various cultures in Geometry & trigonometry  Discuss the various geometric shapes observed around the community (rondavels and their roofs, water tanks, kraals, pyramids, paintings e.g. Ndebele arts, Basotho hats, silos for storing mealies etc). The teachers will also refer learners to sources for more Mathematical information (library,		Learners will make a list of all geometrical shapes they see around them. Give properties of the above mentioned shapes. Also give a list of mathematicians who contributed to geometry and trigonometry.  Learners solve problems on the worksheet applying the trigonometric ratios		Checklist, worksheets, pictures, reference books		Class work, homework and informal test, Project  Memo and rubric  Peer, self, teacher	



internet,etc)  Teacher give application questions to calculate height of buildings, distance of ship at sea from the land ( angle of elevation and depression)  Teaching Methods  Discussion, observation and question and answer				
Homework: Exercises given from selected textbooks and various resource material				
Enrichment/Expanded Opportunities: Write autobiography of the mathematicians				
Teacher Reflections:				

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SUBJECT: MATHEMATICS		GRADE 10		LESSON PLAN 3		TIME : 9 HOURS	
Context: Engineering, real life situations							
Link with previous lesson: Lines and angles, triangles and quadrilaterals							
KNOWLEDGE (K): Properties of triangles, quadrilaterals and other polygons							
SKILLS (S): Investigate, produce conjectures & generalizations, prove							
VALUES (V): Appreciation of use of polygons in real life situations							
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>	
10.1.1 Identify rational numbers and convert between terminating or recurring decimals		10.2.1 a) Demonstrate the ability to work with various types of functions, including those listed in the following Assessment Standard. (b) Recognise relationships between variables in terms of numerical, graphical, verbal and symbolic representations and convert flexibly between these representations (tables, graphs, words and formulae).		10.3.1 Understand and determine the effect on the volume and surface area of right prisms and cylinders, of multiplying any dimension by a constant factor k.		10.4.1 Collect, organize and interpret data determine: measures of central tendency measures of dispersion: Represent data effectively, choosing appropriately from:	
10.1.2 Simplify expressions using the laws of exponents		10.2.2 Generate as many graphs as necessary, initially by means of point-by-point plotting, supported by available technology, to make and test conjectures and hence to generalise the effects of the parameters $a$ and $q$ on the graphs of functions including:		10.3.2 Through investigations, produce conjectures and generalisations	√		
10.1.3 Investigate number patterns		10.2.3 Identify characteristics as listed below and hence use applicable characteristics to sketch graphs of functions		10.3.3 Represent geometric figures on a Cartesian co-ordinate system, and derive and apply, for any two points			

10.1.4 Use simple and compound growth formulae		10.2.4 Manipulate algebraic expressions		10.3.4 Investigate, generalise and apply the effect of the following transformations of the point (x; y):				
10.1.5 Demonstrate an understanding of the implications of fluctuating foreign exchange rates		10.2.5 Solve: (a) linear equations (b) quadratic equations by factorisation (c) exponential equations (d) linear inequalities in one variable and illustrate the solution graphically		10.3.5 Understand that the similarity of triangles is fundamental to the trigonometric functions				
10.1.6 Solve non-routine, unseen problems.		10.2.6 Use mathematical models to invest problems that arise in real-life contexts:		10.3.6 Solve problems in two dimensions by using the trigonometric functions				
		10.2.7 Investigate the average rate of change of a function between two values of the independent variable,						
TEACHING ACTIVITIES		LEARNERS ACTIVITIES		RESOURCES		ASSESSMENT		DAT E CO MPL ETE D
Activity 1  Properties of triangles  Educator gives learners worksheet with different sizes of triangles for learners to investigate their properties and produce conjectures and generalizations  Teaching Methods  Investigation, discovery, discussion and question and answer		Learners will complete the worksheets according to the given instructions, measuring, recording, making necessary calculations, proving and then making conjectures and generalizations using any logical method Euclidean, co-ordinate and/or transformation		Mathematical sets, calculators, worksheets, textbooks		Class work, home work, and short informal test.  Memo and checklist  Peer, self, group and teacher		
Activity 2		Learners will complete the worksheets according to the given instructions, measuring, recording, making necessary calculations,		Mathematical sets, calculators, worksheets, textbooks		Class work, home work, and short informal test.		

<p>Properties of quadrilaterals</p> <p>Educator gives learners worksheet with different types and sizes of quadrilaterals for learners to investigate their properties and produce conjectures and generalizations</p> <p>Teaching Methods</p> <p>Investigation, discovery, discussion and question and answer</p>	<p>proving and then making conjectures and generalizations using any logical method Euclidean, co-ordinate and/or transformation</p>		<p>Memo and checklist</p> <p>Peer, self, group and teacher</p>	
<p>Activity 3</p> <p>Properties of other polygons</p> <p>Educator gives learners worksheet with different types and sizes of polygons for learners to investigate their properties and produce conjectures and generalizations</p> <p>Teaching Methods</p> <p>Investigation, discovery, discussion and question and answer</p>	<p>Learners will complete the worksheets according to the given instructions, measuring, recording, making necessary calculations, proving and then making conjectures and generalizations using any logical method Euclidean, co-ordinate and/or transformation</p>	<p>Mathematical sets, calculators, worksheets, textbooks</p>	<p>Class work, home work, and short informal test.</p> <p>Memo and checklist</p> <p>Peer, self, group and teacher</p>	
Homework: Exercises given from selected textbooks and various resource material				
Enrichment/Expanded Opportunities: Challenging exercises on triangles, quadrilaterals and other polygons				
Teacher Reflections:				

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**SUBJECT: MATHEMATICS****GRADE 10****LESSON PLAN 4****TIME : 9 HOURS**

Context: Use of scales in real life situation.

Link with previous lesson: Graphs

KNOWLEDGE (K): Geometric figures: distance between two points, gradient of the line, co-ordinates of the midpoints. Transformation: translation and reflection

SKILLS (S): Derive and apply formula for calculating, investigation and generalization

VALUES (V): Develop interest in the use of co-ordinate geometry in real life

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>	
10.1.1 Identify rational numbers and convert between terminating or recurring decimals		10.2.1 a) Demonstrate the ability to work with various types of functions, including those listed in the following Assessment Standard. (b) Recognise relationships between variables in terms of numerical, graphical, verbal and symbolic representations and convert flexibly between these representations (tables, graphs, words and formulae).		10.3.1 Understand and determine the effect on the volume and surface area of right prisms and cylinders, of multiplying any dimension by a constant factor k.		10.4.1 Collect, organize and interpret data determine: measures of central tendency measures of dispersion: Represent data effectively, choosing appropriately from:	
10.1.2 Simplify expressions using the laws of exponents		10.2.2 Generate as many graphs as necessary, initially by means of point-by-point plotting, supported by available technology, to make and test conjectures and hence to generalise the effects of the parameters $a$ and $q$ on the graphs of functions including:		10.3.2 Through investigations, produce conjectures and generalisations			
10.1.3 Investigate number patterns		10.2.3 Identify characteristics as listed below and hence use applicable		10.3.3 Represent geometric figures on a Cartesian co-ordinate system, and derive	√		

		characteristics to sketch graphs of functions		and apply, for any two points			
10.1.4 Use simple and compound growth formulae		10.2.4 Manipulate algebraic expressions		10.3.4 Investigate, generalise and apply the effect of the following transformations of the point (x; y):	√		
10.1.5 Demonstrate an understanding of the implications of fluctuating foreign exchange rates		10.2.5 Solve: (a) linear equations (b) quadratic equations by factorisation (c) exponential equations (d) linear inequalities in one variable and illustrate the solution graphically		10.3.5 Understand that the similarity of triangles is fundamental to the trigonometric functions			
10.1.6 Solve non-routine, unseen problems.		10.2.6 Use mathematical models to invest problems that arise in real-life contexts:		10.3.6 Solve problems in two dimensions by using the trigonometric functions			
		10.2.7 Investigate the average rate of change of a function between two values of the independent variable,					
TEACHING ACTIVITIES		LEARNERS ACTIVITIES		RESOURCES		ASSESSMENT	DAT E CO MPL ETE D
Activity 1  Distance formula, gradient of the line and midpoint  Teacher gives learners worksheets and graph papers to draw and locate points on a Cartesian plane  Teaching Methods  Investigation, discovery, discussion and question and answer		Learners will complete the worksheets as per instructions, plotting given points, joining them and derive a distance, gradient and midpoint formulae		Mathematical sets, calculators, worksheets and graph or grid papers and resource material and textbooks		Class work, home work  Memo and checklist  Peer, self, group and teacher	
Activity 2  Transformation : translation		Learners will complete the worksheets as per instructions, plotting given, investigate, generalize and apply the effects of		Mathematical sets, calculators, worksheets and graph or grid papers and resource material and textbooks		Class work, home work  Memo and checklist	

<p>Teacher gives learners worksheets and graph or grid papers to draw and locate points and regions on a Cartesian plane</p> <p>Teaching Methods</p> <p>Investigation, discovery, discussion and question and answer</p>	<p>translations of <b>p</b> units horizontally and <b>q</b> units vertically for both points and regions</p>		<p>Peer, self, group and teacher</p>	
<p>Activity 3</p> <p>Transformation : reflection and glide reflections</p> <p>Reflection in the x axis, y axis, and the Line <math>y = x</math>.</p> <p>Teacher provides worksheets and demonstrates the reflection in the x axis, y axis, and the Line <math>y = x</math>.</p> <p>Teaching Methods</p> <p>Investigation, discovery, discussion and question and answer</p>	<p>Learners will complete the worksheets as per instructions, plotting given points , investigate, generalize and apply the effects of reflections and glide reflections of p units horizontally and q units vertically for both points and regions about the indicated lines.</p>	<p>Mathematical sets, calculators, worksheets and graph or grid papers and resource material and textbooks</p>	<p>Class work, home work, <b>controlled test</b></p> <p>Memo and checklist</p> <p>Peer, self, group and teacher</p>	
Homework: Exercises given from selected textbooks and various resource material				
Enrichment/Expanded Opportunities: Additional tasks appropriate to gifted and slow learners to be given, e.g. Reflection in the line $y = -x$ , and remedial work .				
Teacher Reflections:				

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SUBJECT: MATHEMATICS		GRADE 10		LESSON PLAN 5		TIME : 9 HOURS	
Context: Real life situations							
Link with previous lesson: Simple and compound interest, percentages, data collection							
KNOWLEDGE (K): Currencies, foreign exchange rates SKILLS (S): Data collection, conversions							
VALUES (V): Develop interest in the importance of currency exchanges among countries							
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>	
10.1.1 Identify rational numbers and convert between terminating or recurring decimals		10.2.1 a) Demonstrate the ability to work with various types of functions, including those listed in the following Assessment Standard. (b) Recognise relationships between variables in terms of numerical, graphical, verbal and symbolic representations and convert flexibly between these representations (tables, graphs, words and formulae).		10.3.1 Understand and determine the effect on the volume and surface area of right prisms and cylinders, of multiplying any dimension by a constant factor k.		10.4.1 Collect, organize and interpret data determine: measures of central tendency measures of dispersion: Represent data effectively, choosing appropriately from:	
10.1.2 Simplify expressions using the laws of exponents		10.2.2 Generate as many graphs as necessary, initially by means of point-by-point plotting, supported by available technology, to make and test conjectures and hence to generalise the effects of the parameters <i>a</i> and <i>q</i> on the graphs of functions including:		10.3.2 Through investigations, produce conjectures and generalisations			
10.1.3 Investigate number patterns		10.2.3 Identify characteristics as listed below and hence use applicable characteristics to sketch graphs of functions		10.3.3 Represent geometric figures on a Cartesian co-ordinate system, and derive and apply, for any two points			



10.1.4 Use simple and compound growth formulae	√	10.2.4 Manipulate algebraic expressions		10.3.4 Investigate, generalise and apply the effect of the following transformations of the point (x; y):			
10.1.5 Demonstrate an understanding of the implications of fluctuating foreign exchange rates	√	10.2.5 Solve: (a) linear equations (b) quadratic equations by factorisation (c) exponential equations (d) linear inequalities in one variable and illustrate the solution graphically		10.3.5 Understand that the similarity of triangles is fundamental to the trigonometric functions			
10.1.6 Solve non-routine, unseen problems.	√	10.2.6 Use mathematical models to invest problems that arise in real-life contexts:		10.3.6 Solve problems in two dimensions by using the trigonometric functions			
		10.2.7 Investigate the average rate of change of a function between two values of the independent variable,					
TEACHING ACTIVITIES		LEARNERS ACTIVITIES		RESOURCES		ASSESSMENT	DATE COMPLETED
<p>Activity 1</p> <p>Foreign currency exchange rates (on petrol price, imports, exports and overseas travel)</p> <p>Teacher will give learners worksheets, newspapers, and pamphlets on financial exchange rates from banks and media or allow those learners in town or close to town to collect pamphlets themselves from banks. Teacher also instructs learners to listen to financial news on radio as well as watch TV financial news and on internet and record exchange rates broadcast</p>		<p>Learners will collect data from newspapers, radios, TV and any other sources such as internet and complete worksheets. From the data collected each learner will draw a graph on grid papers showing exchange rate over the given period. They will also calculate exchange rates conversions from different currencies. They will be required to discuss how foreign exchange rates affect petrol price, imports, exports and overseas travel</p>		<p>Newspapers, radio &amp; TV financial news reports, financial magazines, calculators, grid papers, intern</p>		<p>Class work, home work, short investigation</p> <p>Memo and checklist</p> <p>Peer, self, group and teacher</p>	

everyday for one week.				
Teaching Methods Investigation, discovery, discussion and question and answer				
Homework: Exercises given from selected textbooks and various resource material				
Enrichment/Expanded Opportunities: Challenging non-routine, unseen problems will be given to learners				
Teacher Reflections:				

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