



PROVINCE OF THE
EASTERN CAPE
EDUCATION

DIRECTORATE:
CURRICULUM FET PROGRAMMES
LESSON PLANS

TERM 3
MATHEMATICAL LITERACY
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: MATHEMATICAL LITERACY. GRADE 10. LESSON PLAN 1. TERM 3. TIME: 13 1/2 HOURS.					
Content: Formulae and Graphs.			Context : Financial and daily-life contexts.		
Link with previous lesson : Number patterns, location of points in 2-dimensional systems.					
KNOWLEDGE (K): Calculation of costs, income and expenditure, express using equations, plotting points and drawing graphs. SKILLS: Plotting points on a Cartesian plane, solving problems. VALUES (V): Appreciation of minimizing costs and maximizing profits.					
<i>LO 1: Numbers and operations in context. The learner is able to use knowledge of numbers and their relationships to investigate a range of different contexts which include financial aspects of personal, business and national issues.</i>		<i>LO 2: Functional Relationships. The learner is able to recognise, interpret, describe and represent various functional relationships to solve problems in real and simulated contexts.</i>		<i>LO 3: Space, Shape & Measurement. The learner is able to measure, estimate and calculate physical quantities and to interpret, describe and represent properties and relationships between 2- and 3-dimensional objects.</i>	
AS; 10.1.1. Solve problems in various contexts by estimating and calculating accurately – arithmetical operations, ratio, rate, proportion and percentage. Calculations with very small and very large numbers.		AS; 10.2.1. Work with numerical data and formulae in a variety of real-life situations to - finding dependent and independent variables and describe rates of change.		AS: 10.3.1. Solve problems in 2- and 3-dimensional contexts by estimating, measuring and calculating – lengths, distances, areas, perimeter, volumes and surface areas of plane figures and solids.	
AS; 10.1.2 Relate calculated answers correctly and appropriately to problem situations.		AS: 10.2.2. Draw graphs in a variety of real-life situations by: point-by-point plotting of data, and work with formulae to establish points to plot.		AS: 10.3.2. Convert units of measurement within the metric system.	
AS:10.1.3. Apply mathematical knowledge and skills to plan personal finances. Manage income and expenditure; Simple and compound interest, compounded monthly, quarterly, yearly, etc.		AS: 10.2.3. Critically interpret tables and graphs of relationships between two variables in a variety of real-life situations; find values of variables, describe overall trends, find maximum and minimum points, describe trends.		AS: 10.3.3. Draw and interpret scale drawings of plans to represent and identify views. Draw and interpret top, front and side views (elevations) of a plan.	
				AS: 10.4.1. Investigate situations in own life on issues related to social, environmental and political factors using appropriate statistical methods (eg. Collecting data by questionnaire, interviews, etc.	
				AS: 10.4.2. Select and use a variety of methods to summarise and display data in statistical charts and graphs – tallies, tables, pie charts, simple and compound bar graphs, histograms and line graphs.	
				AS: 10.4.3. Compare data using measures of central tendencies and spread – mean, median, mode and range.	

				AS: 10.3.4. Solve real-life problems in 2- and 3-dimensional situations using geometric diagrams. Eg. Floor plans of buildings.	AS: 10.4.4. Critically interpret a single set of data to draw conclusions on problems investigated and make predictions.
				AS: 10.3.5. Recognise, visualize, describe and compare properties of geometrical figures.	AS: 10.4.5. Work with probability concepts to comparative frequency of an outcome. Express probability as a fraction, ratio or percentage
					AS: 10.4.6 Effectively communicate conclusion and predictions using appropriate probability terminologies.

	Teacher Activity	Learner Activity	Assessment	Resources	Date completed
Activity 1 Cartesian plane, Plotting points and drawing graphs.	Teacher revises the use of co-ordinate axes in plotting points. Provides learners with a variety of tables to compare two quantities (eg. distance vs time, weight vs age, temperature vs days, etc) And explains the concept of dependent and independent variables.	Learners work individually or in pairs to compare quantities and locate points on a co-ordinate grid system. Use tables of values to compare two variables to identify relative increases or decreases. Identify and compare dependent and independent variables.	.Class work, home work, class test. Investigation.	Text books, Calculator, Mathematical instruments, Graph paper.	
Activity 2 Drawing graphs	Teacher provides learners with graph paper and news paper cuttings containing graphical	Learners use point-by-point plotting to draw line graphs of best fit. and calculate gradients. Observe shapes of graphs in the media and	Class work, Home work.	Graph paper, Relevant media cuttings, calculator,	

	relationships. Guides learners to draw values from graphs in the media and other sources to make interpretations and draw conclusions.	compare relationship between quantities, make their own interpretations and conclusions.		Mathematical sets.	
Activity 3 Calculating positive and negative gradients.	Teacher discusses different tables of values of linear relationships with learners. Guides learners in discussing and interpreting positive and negative gradients.	Learners discuss and interpret relationships and transform them to linear equations. Discuss the meaning of intercepts and gradients (slope). Calculate gradients (both positive and negative) gradients from intercepts.	. Class work, home work.	Graph paper, tables of values from different sources, Maths. Sets.	
Home work.					
Expanded opportunities:	Learners will do more examples of graphs and gradients from different study guides, exemplar question papers and past examination papers.				
Teacher Reflections.					

Signature: Teacher :.....

HOD :

Date:

Date :

SUBJECT: MATHEMATICAL LITERACY.		GRADE 10.		LESSON PLAN 2.		TERM 3.		TIME: 9 HOURS.	
Content: Graphs of Relationships.						Context : Daily-life contexts.			
Link with previous lesson : Cartesian co-ordinate system.									
KNOWLEDGE (K): Calculation of costs, income and expenditure, express using equations, plotting points and drawing graphs.									
SKILLS: Plotting points on a Cartesian plane, solving problems.									
VALUES (V): Appreciation of minimizing costs and maximizing profits.									
<i>LO 1: Numbers and operations in context. The learner is able to use knowledge of numbers and their relationships to investigate a range of different contexts which include financial aspects of personal, business and national issues.</i>		<i>LO 2: Functional Relationships. The learner is able to recognise, interpret, describe and represent various functional relationships to solve problems in real and simulated contexts.</i>		<i>LO 3: Space, Shape & Measurement. The learner is able to measure, estimate and calculate physical quantities and to interpret, describe and represent properties and relationships between 2- and 3-dimensional objects.</i>		<i>LO 4: Data Handling. The learner is able to collect, summarise, display and analyse data and apply knowledge of statistics and probability to communicate, justify & predict findings and draw conclusions.</i>			
AS; 10.1.1. Solve problems in various contexts by estimating and calculating accurately – arithmetical operations, ratio, rate, proportion and percentage. Calculations with very small and very large numbers.		AS; 10.2.1. Work with numerical data and formulae in a variety of real-life situations to - finding dependent and independent variables and describe rates of change.	√	AS: 10.3.1. Solve problems in 2- and 3-dimensional contexts by estimating, measuring and calculating – lengths, distances, areas, perimeter, volumes and surface areas of plane figures and solids.		AS: 10.4.1. Investigate situations in own life on issues related to social, environmental and political factors using appropriate statistical methods (eg. Collecting data by questionnaire, interviews, etc.			
AS; 10.1.2 Relate calculated answers correctly and appropriately to problem situations.		AS: 10.2.2. Draw graphs in a variety of real-life situations by: point-by-point plotting of data, and work with formulae to establish points to plot.	√	AS: 10.3.2. Convert units of measurement within the metric system.		AS: 10.4.2. Select and use a variety of methods to summarise and display data in statistical charts and graphs – tallies, tables, pie charts, simple and compound bar graphs, histograms and line graphs.			
AS:10.1.3. Apply mathematical knowledge and skills to plan personal finances. Manage income and expenditure; Simple and compound interest, compounded monthly, quarterly, yearly, etc.		AS: 10.2.3. Critically interpret tables and graphs of relationships between two variables in a variety of real-life situations; find values of variables, describe overall trends, find maximum and minimum points, describe trends.		AS: 10.3.3. Draw and interpret scale drawings of plans to represent and identify views. Draw and interpret top, front and side views (elevations) of a plan.		AS: 10.4.3. Compare data using measures of central tendencies and spread – mean, median, mode and range.			

				AS: 10.3.4. Solve real-life problems in 2- and 3-dimensional situations using geometric diagrams. Eg. Floor plans of buildings.	AS: 10.4.4. Critically interpret a single set of data to draw conclusions on problems investigated and make predictions.	
				AS: 10.3.5. Recognise, visualize, describe and compare properties of geometrical figures.	AS: 10.4.5. Work with probability concepts to comparative frequency of an outcome. Express probability as a fraction, ratio or percentage	
					AS: 10.4.6 Effectively communicate conclusion and predictions using appropriate probability terminologies.	

	Teacher Activity	Learner Activity	Assessment	Resources	Date completed
Activity 1 Interpretation of critical points.	Teacher provides a variety of worksheets for learners to plot and draw linear graphs of relationships.	Learners plot and draw graphs based on the data given to them. Eg. from metered taxis, bus companies, metro rail, etc. Learners compare and interpret intercepts of graphs with values in equations and vice versa.	Class work, home work, class test.	Text books, Mathematical instruments, Graph paper. Newspaper samples of currencies.	
Activity 2 Interpretation of graphs and predicting trends.	Teacher guides learners to do research on events affecting them. Eg. effect of petrol price increase on transport costs.	Learners collect data and use data collected to tabulate and draw graphs and to critically interpret graphs and describe overall trends.	Class work, Home work.	Graph paper, calculator, Mathematical sets.	
Activity 3	Teacher provides learners opportunities to perform	Learners collect data and represent that in tables and by graphs. They then critically	Class work, home work.	Graph paper, tables of values	

SUBJECT: MATHEMATICAL LITERACY.		GRADE 10.		LESSON PLAN 3.		TERM 3.		TIME: 13 1/2 HOURS.	
Content: Number system; Rate, Ratio, Percentage.					Context : Managing money and personal budgeting.				
Link with previous lesson : The number line and basic mathematical operations.									
KNOWLEDGE (K): Fractions, decimals and percentages. Exponents and roots.									
SKILLS: Calculate, estimate, convert, predict.									
VALUES (V): Appreciation in their ability to do simple calculations affecting finances in their daily lives.									
<i>LO 1: Numbers and operations in context. The learner is able to use knowledge of numbers and their relationships to investigate a range of different contexts which include financial aspects of personal, business and national issues.</i>		<i>LO 2: Functional Relationships. The learner is able to recognise, interpret, describe and represent various functional relationships to solve problems in real and simulated contexts.</i>			<i>LO 3: Space, Shape & Measurement. The learner is able to measure, estimate and calculate physical quantities and to interpret, describe and represent properties and relationships between 2- and 3-dimensional objects.</i>			<i>LO 4: Data Handling. The learner is able to collect, summarise, display and analyse data and apply knowledge of statistics and probability to communicate, justify & predict findings and draw conclusions.</i>	
AS; 10.1.1. Solve problems in various contexts by estimating and calculating accurately – arithmetical operations, ratio, rate, proportion and percentage. Calculations with very small and very large numbers.	√	AS; 10.2.1. Work with numerical data and formulae in a variety of real-life situations to - finding dependent and independent variables and describe rates of change.		AS: 10.3.1. Solve problems in 2- and 3-dimensional contexts by estimating, measuring and calculating – lengths, distances, areas, perimeter, volumes and surface areas of plane figures and solids.		AS: 10.4.1. Investigate situations in own life on issues related to social, environmental and political factors using appropriate statistical methods (eg. Collecting data by questionnaire, interviews, etc.			
AS; 10.1.2 Relate calculated answers correctly and appropriately to problem situations.	√	AS: 10.2.2. Draw graphs in a variety of real-life situations by: point-by-point plotting of data, and work with formulae to establish points to plot.		AS: 10.3.2. Convert units of measurement within the metric system.		AS: 10.4.2. Select and use a variety of methods to summarise and display data in statistical charts and graphs – tallies, tables, pie charts, simple and compound bar graphs, histograms and line graphs.			
AS:10.1.3. Apply mathematical knowledge and skills to plan personal finances. Manage income and expenditure; Simple and compound interest, compounded monthly, quarterly, yearly, etc.		AS: 10.2.3. Critically interpret tables and graphs of relationships between two variables in a variety of real-life situations; find values of variables, describe overall trends, find maximum and minimum points, describe trends.		AS: 10.3.3. Draw and interpret scale drawings of plans to represent and identify views. Draw and interpret top, front and side views (elevations) of a plan.		AS: 10.4.3. Compare data using measures of central tendencies and spread – mean, median, mode and range.			
				AS: 10.3.4. Solve real-life		AS: 10.4.4. Critically interpret			

				problems in 2- and 3-dimensional situations using geometric diagrams. Eg. Floor plans of buildings.	a single set of data to draw conclusions on problems investigated and make predictions.	
				AS: 10.3.5. Recognise, visualize, describe and compare properties of geometrical figures.	AS: 10.4.5. Work with probability concepts to comparative frequency of an outcome. Express probability as a fraction, ratio or percentage	
					AS: 10.4.6 Effectively communicate conclusion and predictions using appropriate probability terminologies.	

	Teacher Activity	Learner Activity	Assessment	Resources	Date completed
Activity 1 Basic operations.	Teacher demonstrates the use of calculator in basic operations and changing fractions to decimals and vice versa.	Learners do a variety of exercises to develop their skills in basic operations with simple and compound fractions, decimals, very large and very small numbers, ratios rates and percentages.	Class work, home work, class test.	Text books, Mathematical instruments, Calculator.	
Activity 2 Fractions, rate, ratio and percentage.	Shows how fractions can be expressed as percentages and vice versa.	Convert fractions and decimals to percentages. Determine percentage increase and decrease of quantities using examples of every-day situations.	Class work, Home work.	Calculator, Text books.	
Activity 3	Teacher provides learners with newspaper cuttings	Learners compare day-to-day variations in the above quantities and express this as	Class work, home work.	tables of values from different	

SUBJECT: MATHEMATICAL LITERACY.		GRADE 10.		LESSON PLAN 4.		TERM 3.		TIME: 9 HOURS.	
Content: Operations in context. Income and Expenditure.					Context : Managing money and personal budgeting.				
Link with previous lesson : fractions, decimals, rate, ratio and percentages.									
KNOWLEDGE (K): Simple and compound growth and linear functions.									
SKILLS: Calculate, estimate and compare									
VALUES (V): Appreciation in their ability to manage own finances and making financially appropriate decisions.									
<i>LO 1: Numbers and operations in context. The learner is able to use knowledge of numbers and their relationships to investigate a range of different contexts which include financial aspects of personal, business and national issues.</i>		<i>LO 2: Functional Relationships. The learner is able to recognise, interpret, describe and represent various functional relationships to solve problems in real and simulated contexts.</i>			<i>LO 3: Space, Shape & Measurement. The learner is able to measure, estimate and calculate physical quantities and to interpret, describe and represent properties and relationships between 2- and 3-dimensional objects.</i>			<i>LO 4: Data Handling. The learner is able to collect, summarise, display and analyse data and apply knowledge of statistics and probability to communicate, justify & predict findings and draw conclusions.</i>	
AS; 10.1.1. Solve problems in various contexts by estimating and calculating accurately – arithmetical operations, ratio, rate, proportion and percentage. Calculations with very small and very large numbers.		AS; 10.2.1. Work with numerical data and formulae in a variety of real-life situations to - finding dependent and independent variables and describe rates of change.		AS: 10.3.1. Solve problems in 2- and 3-dimensional contexts by estimating, measuring and calculating – lengths, distances, areas, perimeter, volumes and surface areas of plane figures and solids.		AS: 10.4.1. Investigate situations in own life on issues related to social, environmental and political factors using appropriate statistical methods (eg. Collecting data by questionnaire, interviews, etc.			
AS; 10.1.2 Relate calculated answers correctly and appropriately to problem situations.	√	AS: 10.2.2. Draw graphs in a variety of real-life situations by: point-by-point plotting of data, and work with formulae to establish points to plot.		AS: 10.3.2. Convert units of measurement within the metric system.		AS: 10.4.2. Select and use a variety of methods to summarise and display data in statistical charts and graphs – tallies, tables, pie charts, simple and compound bar graphs, histograms and line graphs.			
AS:10.1.3. Apply mathematical knowledge and skills to plan personal finances. Manage income and expenditure; Simple and compound interest, compounded monthly, quarterly, yearly, etc.	√	AS: 10.2.3. Critically interpret tables and graphs of relationships between two variables in a variety of real-life situations; find values of variables, describe overall trends, find maximum and minimum points, describe trends.		AS: 10.3.3. Draw and interpret scale drawings of plans to represent and identify views. Draw and interpret top, front and side views (elevations) of a plan.		AS: 10.4.3. Compare data using measures of central tendencies and spread – mean, median, mode and range.			

				AS: 10.3.4. Solve real-life problems in 2- and 3-dimensional situations using geometric diagrams. Eg. Floor plans of buildings.	AS: 10.4.4. Critically interpret a single set of data to draw conclusions on problems investigated and make predictions.	
				AS: 10.3.5. Recognise, visualize, describe and compare properties of geometrical figures.	AS: 10.4.5. Work with probability concepts to comparative frequency of an outcome. Express probability as a fraction, ratio or percentage	
					AS: 10.4.6 Effectively communicate conclusion and predictions using appropriate probability terminologies.	

	Teacher Activity	Learner Activity	Assessment	Resources	Date completed
Activity 1 Calculating simple interest.	Teacher discusses the importance of sound planning in managing one's personal finances. Revises the formula for calculating simple interest and guides learners to calculate simple interest.	Learners work in groups to calculate simple interest on different amounts deposited at different rates of interest for different periods. Hence compare and determine the best deposit schemes. Learners discuss the advantage of depositing money in savings accounts and compare interests earned.	Class work, home work, class test.	Text books, Mathematical instruments, Calculator.	
Activity 2 Income and expenditure.	Teacher discusses the importance of budgeting and controlling one's income and expenditure and develops in learners the habit of saving money for future use.	Learners work individually with different sources of income and different ways of spending money in order to effectively plan finances. They compare their budgeting with that of their peers to draw conclusions and decide on best budgeting practices.	Class work, Home work.	Calculator, Text books.	

