PROVINCE OF THE EASTERN CAPE EDUCATION

DIRECTORATE:
CURRICULUM FET PROGRAMMES
LESSON PLANS

TERM 3
MATHEMATICAL LITERACY
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: MATHEMATICAL LITERACY.	GRADE 11.	LESSON PLAN 1.	TERM 3.	TIME: 13 1/2 HOURS.

Content: Probability	Context : playing games with a die, cards, coins and gambling

Link with previous lesson : fractions, ratio, percentage, decimal fraction

KNOWLEDGE (K): fractions, ratio, percentage, tree diagram
SKILLS (S): drawing , predict or hypothesis
VALUES (V): enhancing the value of playing games and seeing danger of gambling

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.*		*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.*		*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.*		*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.*	
AS : 11.1.1. Find ways to explore and analyse numerically based situations by estimating, , calculating, checking results, rounding off and working with exponents and roots.		AS: 11.2.1.Work with numerical data and formulae in a variety of real-life situations to - find break-even points find optimal ranges.		AS: 11.3.1. Solve problems in 2-dimensional and 3-dimensional contexts by estimating, measuring and calculating: lengths, distances, areas, perimeter, volumes and surface areas of figures & solids		AS: 11.4.1. Investigate problems on issues related to social, environmental and political factors using appropriate statistical methods and comparing data from different sources and samples.	
AS: 11.1.2. Relate calculated answers correctly and appropriately to problem situations.		AS: 11.2.2. Draw graphs as required by the situations and problems being investigated.		AS: 11..3.2. Convert units of measurement between different scales and systems .		AS : 11.4.2. Choose and interpret the use of methods to display data in statistical charts and graphs. -Tallies, tables, pie chart, single and compound bar graphs, line graphs and ogives	
AS: 11.1.3. Investigate and determine entrepreneurship by calculating income and expenditure, profit and loss and		AS: 11. 2.3. Critically interpret tables and graphs of relationships between two variables in a variety of real-life		AS: 12.3.3. Use and interpret scale drawings of plans to represent and identify views, estimate and calculate values		AS: 11. 4..3. Compare data using measures of central tendencies & spread – mean, median, mode, variance,	

			according to scale.	standard deviation and quartiles.	
			AS: 11..3.4. Use grids to determine locations and describe relative positions.	AS: 11.4. 4. Critically interpret two sets of data to draw conclusions on problems investigated and make predictions.	
			AS: 11.3.5. Use basic trigonometric ratios – sine, cosine and tangent to interpret and solve problems.	AS: 11.4.5. Make and test predictions of compound outcomes in games and real-life situations by estimating basic probabilities; and drawing tree-diagrams.	√
			AS: 12.3.6. Recognise, visualise, describe and compare geometrical figures and solids.	AS: 11.4.6. Manipulate data in different ways to justify opposing conclusions.	

	Teacher Activity	Learner Activity	Assessment	Resources	Date completed
Activity 1 Playing games i.e. dice, tossing coins playing cards, playing Lotto	1.Group learners in threes. 2.Distribute dice among groups, worksheet for recording scores and formula $$P(event) = \frac{no.of events}{no.of possible outcomes}$$ 3. Teacher brings lotto tickets and guide them how to play the game.	1.Each learner play 10 times and record scores. Write probability of getting 1, 2, 3, 4, 5, 6 using the given formula. 2. Learners toss one coin five times and record probability of getting head or tail five times. 3. Play cards, choosing any card from the deck of cards and replacing it after recording it. Find the probability of getting any card, Ace, Pictures, etc.	Group work Peer, learner Class work Home work Investigation Memos rubrics	Worksheet containing tables for recording scores and formula of calculating probability, Dice, coins, cards, lotto tickets, paper, pen, pencil	
Activity 2 Probability	Teacher demonstrate probability tree of tossing two coins.	Make probability trees using their examples, 3 coins, tossing a coin and a die.	Individual Peer, learner Class work	Pen, paper, pencil, rubber	

trees	Ask learners to refer to their games and make probability trees.		Home work memo		
Activity 3 Gambling	Provide worksheet with instructions on how to play a gambling game and table to record results of winning or losing. Ask the learners to draw the probability tree and a bar graph. Ask questions based on the bar graph.	Read instructions and play the game. They record the results using probability. Make a probability tree and a bar graph Answer question based on the bar graph.	Project Teacher Group work	Worksheet with instructions on how to play the game, dice, coins, cards,	
Home work.					
Expanded opportunities:	Make probability tree using any game.				
Teacher Reflections.					

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SUBJECT: MATHEMATICAL LITERACY.	GRADE 11.	LESSON PLAN 2.	TERM 3.	TIME: 9 HOURS.

Content: Business Mathematics.		Context : Taxi business, cell phone packages, electricity tariffs		
Link with previous lesson : Income and expenditure, graphical representation of data				
KNOWLEDGE (K):Profit, loss, brake even points, formulation of equations, linear and inverse proportion SKILLS (S): drawing graphs, comparing, interpreting and critique quotations VALUES (V): appreciation of business				

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.		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.		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.		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.	
AS : 11.1.1. Find ways to explore and analyse numerically based situations by estimating, , calculating, checking results, rounding off and working with exponents and roots.		AS: 11.2.1.Work with numerical data and formulae in a variety of real-life situations to - find break-even points find optimal ranges.	√	AS: 11.3.1. Solve problems in 2-dimensional and 3-dimensional contexts by estimating, measuring and calculating: lengths, distances, areas, perimeter, volumes and surface areas of figures & solids		AS: 11.4.1. Investigate problems on issues related to social, environmental and political factors using appropriate statistical methods and comparing data from different sources and samples.	
AS: 11.1.2. Relate calculated answers correctly and appropriately to problem situations.		AS: 11.2.2. Draw graphs as required by the situations and problems being investigated.		AS: 11..3.2. Convert units of measurement between different scales and systems .		AS : 11.4.2. Choose and interpret the use of methods to display data in statistical charts and graphs. -Tallies, tables, pie chart, single and compound bar graphs, line graphs and ogives	
AS: 11.1.3. Investigate and determine entrepreneurship by calculating income and expenditure, profit and loss and	√	AS: 11. 2.3. Critically interpret tables and graphs of relationships between two variables in a variety of real-life	√	AS: 12.3.3. Use and interpret scale drawings of plans to represent and identify views, estimate and calculate values		AS: 11. 4..3. Compare data using measures of central tendencies & spread – mean, median, mode, variance,	

determining optimal selling prices, checking profit margins	and simulated situations	according to scale.	standard deviation and quartiles.	
		AS: 11..3.4. Use grids to determine locations and describe relative positions.	AS: 11.4. 4. Critically interpret two sets of data to draw conclusions on problems investigated and make predictions.	
		AS: 11.3.5. Use basic trigonometric ratios – sine, cosine and tangent to interpret and solve problems.	AS: 11.4.5. Make and test predictions of compound outcomes in games and real-life situations by estimating basic probabilities; and drawing tree-diagrams.	
		AS: 12.3.6. Recognise, visualise, describe and compare geometrical figures and solids.	AS: 11.4.6. Manipulate data in different ways to justify opposing conclusions.	

	Teacher Activity	Learner Activity	Assessment	Resources	Date completed
Activity 1 Taxi Business	Make a scenario of a taxi business with table of income and expenditure	Learners read with understanding the scenario , they then fill in gaps in the table, use the table to draw a line graph of income and expenditure. They then find out where they meet (break even point)	Peer, teacher, Class work, home work, memo	Worksheet with scenario, graph paper, pen and pencil, ruler	
Activity 2 Cell phone packages	Provides learners with an advertisement of cell phone package (MTN, Vodacom, Cell C, Telkom), and table of peak and off peak hours, Each group work with one of the above company.	Learners fill in the table and make a graph , they then report to the whole class, and compare the prices and make best choices.	Group, teacher, class work, home work, memo	Cell phone advertisement ,	
Activity 3 Electricity	Provides an electricity bill to learners and questions	They interpret the electricity bill in pairs and then answer the given questions	Peer, teacher,	Electricity bill, ruler , paper,	

tariffs	based on the electricity bill	individually		Class work, home work, memo	pen pencil	
Home work.						
Expanded opportunities:	Explore other businesses					
Teacher Reflections.						

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SUBJECT: MATHEMATICAL LITERACY.   GRADE 11.   LESSON PLAN 3.   TERM 3.   TIME: 9 HOURS.

Content: Graphs.	Context : Socio – economic and business, health

Link with previous lesson : Profit and loss

KNOWLEDGE (K): graphs
SKILLS (S): drawing graphs, interpret
VALUES (V): appreciation for represent of socio – economic graphs

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.*		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.*		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.*		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.*	
AS : 11.1.1. Find ways to explore and analyse numerically based situations by estimating, , calculating, checking results, rounding off and working with exponents and roots.		AS: 11.2.1.Work with numerical data and formulae in a variety of real-life situations to - find break-even points find optimal ranges.		AS: 11.3.1. Solve problems in 2-dimensional and 3-dimensional contexts by estimating, measuring and calculating: lengths, distances, areas, perimeter, volumes and surface areas of figures & solids		AS: 11.4.1. Investigate problems on issues related to social, environmental and political factors using appropriate statistical methods and comparing data from different sources and samples.	
AS: 11.1.2. Relate calculated answers correctly and appropriately to problem situations.		AS: 11.2.2. Draw graphs as required by the situations and problems being investigated.	√	AS: 11..3.2. Convert units of measurement between different scales and systems .		AS : 11.4.2. Choose and interpret the use of methods to display data in statistical charts and graphs. -Tallies, tables, pie chart, single and compound bar graphs, line graphs and ogives	
AS: 11.1.3. Investigate and determine entrepreneurship by calculating income and expenditure, profit and loss and		AS: 11. 2.3. Critically interpret tables and graphs of relationships between two variables in a variety of real-life	√	AS: 12.3.3. Use and interpret scale drawings of plans to represent and identify views, estimate and calculate values		AS: 11. 4..3. Compare data using measures of central tendencies & spread – mean, median, mode, variance,	

determining optimal selling prices, checking profit margins	and simulated situations	according to scale.	standard deviation and quartiles.	
		AS: 11..3.4. Use grids to determine locations and describe relative positions.	AS: 11.4. 4. Critically interpret two sets of data to draw conclusions on problems investigated and make predictions.	
		AS: 11.3.5. Use basic trigonometric ratios – sine, cosine and tangent to interpret and solve problems.	AS: 11.4.5. Make and test predictions of compound outcomes in games and real-life situations by estimating basic probabilities; and drawing tree-diagrams.	
		AS: 12.3.6. Recognise, visualise, describe and compare geometrical figures and solids.	AS: 11.4.6. Manipulate data in different ways to justify opposing conclusions.	

	Teacher Activity	Learner Activity	Assessment	Resources	Date completed
Activity 1 Drawing graph by hand / technology (Socio – economic) e.g. Sports and recreation.	Provide scenarios with tables Eg. Games played vs scores, Attendance at cinemas vs days of the week, number of learners participating in different sports, etc.	Learners use the tables to draw graphs by hand / technology. Use graphs to draw conclusions.	Class work Home work Memo Individual work	Text books, news papers, Magazines, graph paper ruler, pencil, rubber, pen	
Activity 2 Drawing graph by hand / technology (business)	Provide scenarios with tables. Eg. Effect of petrol price on transport costs, exchange rates on import and export, etc.	Learners use the tables to draw graphs by hand / technology. Use graphs to draw conclusions.	Class work Home work Memo Individual work	Text books, news papers, Magazines, graph paper ruler, pencil, rubber, pen	

Activity 3 Drawing graph by hand / technology (Health) e.g. rate of HIV infections	Provide a scenarios with tables Eg. death rate in different countries, HIV infection rate in years.	Learners use the tables to draw graphs by hand / technology. Use graphs to draw conclusions.	Class work Home work **Controlled test** Memo Individual work	Text books, news papers, Magazines, graph paper ruler, pencil, rubber, pen	
Home work.					
Expanded opportunities:	Learners bring scenarios with table from media and draw graphs				
Teacher Reflections.					

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SUBJECT: MATHEMATICAL LITERACY.	GRADE 11.	LESSON PLAN 4.	TERM 3.	TIME: 9 HOURS.

Content: Tables and Graphs.			Context : Financial and health	
Link with previous lesson : Personal finance and drawing of graphs				
KNOWLEDGE (K): tables and graphs, input and output values SKILLS (S): interpretation, estimation VALUES (V): appreciation of use of tables and graphs				

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.	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.		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.	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.	
AS : 11.1.1. Find ways to explore and analyse numerically based situations by estimating, , calculating, checking results, rounding off and working with exponents and roots.	AS: 11.2.1.Work with numerical data and formulae in a variety of real-life situations to - find break-even points find optimal ranges.		AS: 11.3.1. Solve problems in 2-dimensional and 3-dimensional contexts by estimating, measuring and calculating: lengths, distances, areas, perimeter, volumes and surface areas of figures & solids	AS: 11.4.1. Investigate problems on issues related to social, environmental and political factors using appropriate statistical methods and comparing data from different sources and samples.	
AS: 11.1.2. Relate calculated answers correctly and appropriately to problem situations.	AS: 11.2.2. Draw graphs as required by the situations and problems being investigated.	√	AS: 11..3.2. Convert units of measurement between different scales and systems .	AS : 11.4.2. Choose and interpret the use of methods to display data in statistical charts and graphs. -Tallies, tables, pie chart, single and compound bar graphs, line graphs and ogives	
AS: 11.1.3. Investigate and determine entrepreneurship by calculating income and expenditure, profit and loss and determining optimal selling prices, checking profit margins	AS: 11. 2.3. Critically interpret tables and graphs of relationships between two variables in a variety of real-life and simulated situations	√	AS: 12.3.3. Use and interpret scale drawings of plans to represent and identify views, estimate and calculate values according to scale.	AS: 11. 4..3. Compare data using measures of central tendencies & spread – mean, median, mode, variance, standard deviation and quartiles.	
			AS: 11..3.4. Use grids to	AS: 11.4. 4. Critically interpret	

			determine locations and describe relative positions.	two sets of data to draw conclusions on problems investigated and make predictions.	
			AS: 11.3.5. Use basic trigonometric ratios – sine, cosine and tangent to interpret and solve problems.	AS: 11.4.5. Make and test predictions of compound outcomes in games and real-life situations by estimating basic probabilities; and drawing tree-diagrams.	
			AS: 12.3.6. Recognise, visualise, describe and compare geometrical figures and solids.	AS: 11.4.6. Manipulate data in different ways to justify opposing conclusions.	

	Teacher Activity	Learner Activity	Assessment	Resources	Date completed
Activity 1 Interpretation of graphs	Teacher refers learners to graphs drawn in previous lessons and give questions based on graphs. Provide other graphs from various sources with questions based on the graphs.	Learners use the graph drawn in the previous lesson and answers the questions. Learners use the graph to interpret, answer questions and make conclusions.	. Class work Home work Assignment Memo Individual work	Text books, news papers, Magazines, graph paper ruler, pencil, rubber, pen	
Activity 2 Interpretation of tables and graphs	Provide learners with graphs and ask them to draw tables from them.	Learners draw tables from the provided graphs	Class work Home work Memo	Text books, news papers, Magazines, graph paper ruler, pencil, rubber, pen.	

Activity 3 Estimating input and output values	Provide learners with incomplete tables and ask them to estimate then calculate.	Learners estimate values then calculate values to verify the estimation.	Class work Home work Memo	Text books, news papers, Magazines, (Erase some values in the tables taken from the above), pencil, rubber, pen	
Home work.					
Expanded opportunities:	Gifted learners are given more challenging problems and remedial work for the struggling learners.				
Teacher Reflections.					

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SUBJECT: MATHEMATICAL LITERACY.	GRADE 11.	LESSON PLAN 5.	TERM 3.	TIME: 4 1/2 HOURS.

Content: Simple and Compound Interest.			Context : Business, banking.	

Link with previous lesson : Probability, brake even points.

KNOWLEDGE (K): simple and compound interest
SKILLS (S): rounding off, calculate, estimate
VALUES (V): use of money effectively

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.*		*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.*		*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.*	*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.*	
AS : 11.1.1. Find ways to explore and analyse numerically based situations by estimating, , calculating, checking results, rounding off and working with exponents and roots.	√	AS: 11.2.1.Work with numerical data and formulae in a variety of real-life situations to - find break-even points find optimal ranges.		AS: 11.3.1. Solve problems in 2-dimensional and 3-dimensional contexts by estimating, measuring and calculating: lengths, distances, areas, perimeter, volumes and surface areas of figures & solids	AS: 11.4.1. Investigate problems on issues related to social, environmental and political factors using appropriate statistical methods and comparing data from different sources and samples.	
AS: 11.1.2. Relate calculated answers correctly and appropriately to problem situations.	√	AS: 11.2.2. Draw graphs as required by the situations and problems being investigated.		AS: 11..3.2. Convert units of measurement between different scales and systems .	AS : 11.4.2. Choose and interpret the use of methods to display data in statistical charts and graphs. -Tallies, tables, pie chart, single and compound bar graphs, line graphs and ogives	
AS: 11.1.3. Investigate and determine entrepreneurship by calculating income and expenditure, profit and loss and determining optimal selling prices, checking profit margins		AS: 11. 2.3. Critically interpret tables and graphs of relationships between two variables in a variety of real-life and simulated situations		AS: 12.3.3. Use and interpret scale drawings of plans to represent and identify views, estimate and calculate values according to scale.	AS: 11. 4..3. Compare data using measures of central tendencies & spread – mean, median, mode, variance, standard deviation and quartiles.	
				AS: 11..3.4. Use grids to	AS: 11.4. 4. Critically interpret	

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			determine locations and describe relative positions.	two sets of data to draw conclusions on problems investigated and make predictions.	
			AS: 11.3.5. Use basic trigonometric ratios – sine, cosine and tangent to interpret and solve problems.	AS: 11.4.5. Make and test predictions of compound outcomes in games and real-life situations by estimating basic probabilities; and drawing tree-diagrams.	
			AS: 12.3.6. Recognise, visualise, describe and compare geometrical figures and solids.	AS: 11.4.6. Manipulate data in different ways to justify opposing conclusions.	

	Teacher Activity	Learner Activity	Assessment	Resources	Date completed
Activity 1 Simple interest	Give learners previous question papers and exemplars to revise questions on simple interest.	Answer problems based on simple interest. First in pairs then individually. They also look for problems of the same concept in study guides.	assignment	Question papers and exemplars Study guides	
Activity 2 Compound interest	Give learners previous question papers and exemplars to revise questions based on compound interest.	Answer problems based on simple interest. First in pairs then individually. They also look for problems of the same concept in study guides.	assignment	Question papers and exemplars Study guides	
Activity 3 Ratio and proportion	Give learners previous question papers and exemplars to revise questions on ratio and proportion.	Answer problems based on simple interest. First in pairs then individually. They also look for problems of the same concept in study guides.	assignment	Question papers and exemplars Study guides	
Home work.					

Expanded opportunities:	More challenging problems for the gifted, and remedial for challenged learners, individual attention
Teacher Reflections.	

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