

MATHEMATICAL LITERACY

LESSON PLANS.

GRADE 10.

LESSON PLAN 1.

Subject: MATHEMATICAL LITERACY		Grade 10	
Lesson Plan: Number and operations in context.		Number of Activities : 3	
Duration : +/- 9H00		Week 1 – 2 Date:	
Context : Mathematics in everyday life.			
Link with previous lesson: Number systems, number patterns, basic operation with numbers.			
CORE CONTENT: (KSV KNOWLEDGE (K): Operations with different number systems. SKILLS (S): Estimating and calculating ratios, percentage and interests. Managing personal finance. VALUES: (V) Appreciating the understanding of ratios, percentages, fractions.			
	ACTIVITY 1	ACTIVITY 2	ACTIVITY 3
Activity Content			
LO,s and AS's	10.1.1.	10.1.1.	10.1.1.
Detail of Activity	Teacher introduces and explains the number system and different number patterns – e.g. natural numbers, integers, whole numbers, real numbers. Simple fractions, compound and decimal fractions. Learners perform basic operations with different numbers.	Learners work in groups with given worksheets to discuss and perform basic operations with positive and negative numbers, common fractions and decimals and rounding off.	Teacher demonstrates the conversion of fractions into percentage and vice versa. - Compare fractions, decimals and percentages. - Learners work on percentage increase or decrease of given quantities.
Teaching Methods	Explanation, question-answer	Group work	Demonstration, individual work
Assessment Strategy :Form : Tool : Method	Class work, Home work. Memos Peer, individual.	Class work, home work, short test. Memos. Peer, Teacher.	Class work, home work. Memos. Peer, individual.
Expanded Opportunities:	More challenging tasks on operations with larger and compound numbers.		
Resources	Calculator, work sheet.	Work sheet, calculator.	Work sheet, calculator.
Teacher reflection			

LESSON PLAN 2.

Subject: MATHEMATICAL LITERACY	Grade 10		
Lesson Plan: Number and operations in context	Number of Activities : 3		
Duration : +/- 9H00	Week 3 – 4 Date:		
Context : Mathematics in everyday life, Personal finance management.			
Link with previous lesson: Number systems, number patterns, basic operation with numbers.			
CORE CONTENT: (KSV)			
KNOWLEDGE (K): Income and expenditure, interest rates, Introduction to business practices.			
SKILLS (S): Estimating and calculating ratios, percentage and interests. Managing personal finance.			
VALUES: (V) Appreciating the understanding of representing numbers in different ways, accruing the ability to solve problems individually.			
	ACTIVITY 1	ACTIVITY 2	ACTIVITY 3
Activity Content	Ratio and proportion	Scientific notation	Simple and compound growth
LO,s and AS's	10.1.1.	10.1.1; 10.1.2..	10.1.1; 10.1.2.
Detail of Activity	Teacher explains the meaning of ratio and proportion with relevant examples. Learners investigate and do calculations based on ratio and proportion including fractional and decimal numbers.	Teacher introduces the concept of exponents and the use of scientific notation.(including the use of scientific calculator). Learners are given a worksheet to do a variety of exercises on representing both large and small numbers using exponents and scientific notation.	Teacher introduces simple and compound growth of investments.(includes using the formula for compound interest. Provides learners with pay slips, municipal statements, budget samples, etc. for learners to work with. Learners work in groups to solve problems based on the above.
Teaching Methods	Explanation, investigation.	Group work	Group work
Assessment Strategy :Form : Tool : Method	Class work, Home work. Memos Peer, individual.	Class work, home work, short test. Memos. Peer, Teacher.	Class work, home work, Assignment. Memos, rubric. Peer, individual, teacher.
Expanded Opportunities:	More challenging tasks based on above operations from study guides.		
Resources	Calculator, work sheet, text book..	Work sheet, calculator, text book.	Text book, bills and statements.
Teacher reflection			

LESSON PLAN 3.

Subject: MATHEMATICAL LITERACY Lesson Plan: Space, shape and measurement. Duration : +/- 9 hH00	Grade 10 Number f Activities : 3 Week: 5 – 6 Date:		
Context : Everyday life contexts.			
Link with previous lesson: Geometric figures, operation with numbers.			
CORE CONTENT: (KSV) KNOWLEDGE (K): Measuring lengths and calculating perimeter and areas. SKILLS (S): Measuring skills, calculating, estimating, conversion of units. VALUES: (V) Understanding and appreciating the ability to measure accurately.			
	ACTIVITY 1	ACTIVITY 2	ACTIVITY 3
Activity Content	Area and volume	Scale drawing of plans	Scale drawing of maps.
LO,s and AS's	10.3.1.	10.3.2; 10.3.3.	10.3.2; 10.3.3.
Detail of Activity	Teacher organizes meter rules, tape measure, strings, etc for learners to measure accurately lengths & heights of geometrical figures in their classroom (eg. Tables, desks, chalk board, cupboard, boxes, etc.) and calculate their perimeter, area and volume of right prisms and express their answers in different units.	Teacher provides learners with plans of houses and maps and explains how to convert given scales to actual distances and lengths. Learners to do measurements of lengths, distances and directions on maps and do conversions to SI units. Learners work in groups to calculate distance, speed and time taken to travel between two points.	Learners are provided with maps of Eastern cape and South Africa and they work either individually or in groups to answer questions . Learners to do measurements of lengths, distances and directions on maps and do conversions to SI units. Learners work in groups to calculate distance, speed and time taken to travel between two points.
Teaching Methods	Group work	Group work	Group work
Assessment Strategy :Form : Tool : Method	Class work, Home work. Memo. Peer, individual.	Class work, home work, class test. Memos. Peer, teacher.	Class work, Controlled Test. Memo. Teacher.
Expanded Opportunities:	More challenging tasks on geometrical figures and solids as well as maps and plans.		
Resources	Measuring instruments	Maps of towns and countries , house plans.	Maps and plans.
Teacher reflection			

LESSON PLAN 4.

Subject: MATHEMATICAL LITERACY Lesson Plan: Space, shape and measurement. Duration : +/- 9H00	Grade 10 Number of Activities : 3 Week : 7 – 8 Date:		
Context : Geometrical solids, reading and interpreting maps and plans.			
Link with previous lesson: Measurement of lengths, areas and volumes.			
CORE CONTENT: (KSV) KNOWLEDGE (K): Measuring and calculating surface area and volume of geometric solids. SKILLS (S): Measuring, estimating, converting units VALUES: (V) Appreciating the knowledge and understanding of measuring and calculating areas and volumes.			
	ACTIVITY 1	ACTIVITY 2	ACTIVITY 3
Activity Content	Conversion of units.	Surface areas and volumes	Scale drawing
LO,s and AS's	10.3.2.	10.3.2.; 10.3.3.	10.3.3.
Detail of Activity	Teacher revises the meaning of areas of both regular and irregular solids. Derives the formulae for calculating areas and volumes clearly showing transformation i.e. 1D → 2D → 3D. Learners given exercises to calculate areas and volumes and to convert and express answers in different units.	Learners are given at least 4 different geometrical solids (cube, cuboid, cone, pyramid, cylinder) and they work in groups to measure and determine the surface area and volume of given solids and express their answers in SI units as well as in the daily used units.	Teacher reinforces the concept of maps and scale drawing of house plans. Learners are given the task to draw plans and interpret when given actual measurements of house plans. Additional exercises with water tanks, swimming pool, classroom, sports field.
Teaching Methods	Discovery, question& answer	Group work	Group and individual work
Assessment Strategy :Form : Tool : Method	Class work, home work, Memos Peer, individual.	Group work, home work, short test. Memo, check list. Teacher, peer.	Assignment, class work. Memo Teacher, peer
Expanded Opportunities:	Measuring surface areas and volumes of solids around at home and in the community.		
Resources	Regular and irregular object.	Measuring instruments.	Maps, house plans., measuring instruments.
Teacher reflection			

LESSON PLAN 5.

Subject: MATHEMATICAL LITERACY Lesson Plan: Tables and graphs. Duration : +/- 9h00	Grade 10 Number of Activities : 3 Week : 9 – 10 Date:		
Context : Mathematical and socio-economic.			
Link with previous lesson: , Scale drawing, point location in 2 dimension.			
CORE CONTENT: (KSV) KNOWLEDGE (K): Locate co-ordinate points, draw tables and graphs. SKILLS (S): Plotting points, drawing tables and graphs, interpreting tables and graphs. VALUES: (V) Appreciating the knowledge and understanding of relevant content and its application in real-life situations.			
	ACTIVITY 1	ACTIVITY 2	ACTIVITY 3
Activity Content	Input and output values	Direct and indirect/inverse relationship.	Interpretation of graphs
LO,s and AS's	10.2.1.	10.2.1; 10.2.2.	10.2.3.
Detail of Activity	Teacher provides learners with tables of functions and relations to explain the relationship between input and output values. Learners work in groups to plot points from tables onto graphs and vice versa.	Teacher explains how to identify direct and inverse relationships from given graphs and demonstrates these two kinds of relationships with relevant examples. Learners to draw graphs of relationships by means of point-by-point plotting of relationships in a variety of real-life situations.	e.g. distance against time, - distance covered vs cost. - compare costs of different cell phone companies and represent findings by graphs. Learners also use given graphs and tables to interpret and relates a variety of real-life situations to: Describe trends, identify max. and min. points, etc.
Teaching Methods	Group work	Explanation, individual work	Individual/group work.
Assessment Strategy :Form : Tool : Method	Class work, home work Memos Peer, individual	Class work, home work, class test. Memos. Teacher, peer.	Controlled test, Class work Memos. Teacher.
Expanded Opportunities:	More examples and exercises on common real-life situations.		
Resources	Calculator, statistical data.	Graph paper, maths. Sets.	Graph paper, text book.

Teacher reflection			
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