	and years. 4.4.3 Uses time measuring instruments to appropriate levels of precision, including watches and clocks . 4.4.4 Describes and illustrates ways of measuring and representing time in different cultures throughout history.	AS Uses information from sources to answer questions about people, events, objects and places in the past [answer the question].	Ways of measuring and representing time in different cultures	
5	<u>CLUSTER 1 [LO 4]</u> 5.4.1 Reads, tells and writes analogue, digital and 24-hour time to at least the nearest minute and second. 5.4.2Solves problems involving calculation and conversion between appropriate time units including decades, centuries in millennia 5.4.3Uses time-measure instruments to appropriate levels of precision including watches and stopwatches. 5.4.4 Describes and illustrates ways of representing time in different cultures throughout history.	<u>Mathematics</u> 5.1.5: Recognises and uses equivalent forms of numbers. <u>Social Sciences</u> 5.2.1 : Uses dates & terms relating to the passing of time & arranges them in order [chronology & Time]	Problem solving involving Time and Proportion Reading of time	Analogue and digital Watches Worksheets

6	<u>CLUSTER1 [LO 4]</u> 6.4.1Reads ,tells and writes analogue , digital and 24-hour time to at least the nearest minute and second 6.4.2Solve problems involving calculations and conversion between appropriate time units including time zones and differences.	<u>MATHEMATICS</u> LO 1: Numbers, operations and relationships 6.1.6: Solves problems in context including contexts that may be	Problem solving including time, units, zones and their differences.	Analogue watch, digital watch Worksheets Pictures on flip chart paper.

	6.4.3Describes and illustrates ways of representing time in different cultures throughout history.	used to build awareness of other Learning Areas as well as human rights, social, economic and environmental issues. Measurements in Natural Sciences and Technology contexts.	Illustration of various indigenous cultural representation of time.	Story telling
4	<u>CLUSTER 2 [LO 4]</u> 4.4.5 Estimates, measures, records, compares and orders 2 dimensional shapes and 3 dimensional objects using SI units with appropriate precision for: • Mass using grams (g) and kilograms (kg); • Capacity using millimetres(mm) and litres(l); • Length using millimetres (mm), centimetres (cm), metres(m) and kilometres(km). 4.4.6 Solves problems involving selecting, calculating with and converting between appropriate SI units of mass integrating appropriate contexts for Technology and Natural Sciences. 4.4.7 Uses appropriate measuring instruments (with understanding of their limitations) to appropriate levels of precision including : • Bathroom scales, kitchen scales and balances to measure mass; • Measuring jugs to measure capacity; • Rulers, metre sticks, tape measures and trundle wheels to measure length.	<u>Mathematics</u> AS 4.1.1: Solves problems in context including contexts that may be used to build awareness of other Learning Areas, as well as human rights, social , economic and and environmental issues such as : • Financial (including buying and selling, and simple budgets); • Measurements in Natural Sciences and Technology contexts.	Estimating , measuring , recording mass Instruments and Units of mass Conversions between units of mass	Kitchen scale Book Bricks Bathroom scale Balance scale

5	**CLUSTER 2 [LO 4]** **5.4.5 Estimates, measures, records, compares and orders 2 dimensional shapes and 3 dimensional objects using SI units with appropriate precision for:** • **Mass using grams (g) and kilograms (kg)** • **Capacity using millilitres and litres** • **Length using mm, cm, m, and km** • **Temperature using degree Celsius scale.** **5.4.6 Solves problems involving selecting, calculating with and converting between appropriate SI units of mass integrating appropriate contexts for Technology and Natural Sciences.** **5.4.7 Uses appropriate measuring instruments (with understanding of their limitations) to appropriate levels of precision including :** • **Bathroom scales, kitchen scales and balances to measure mass.** • **Measuring jugs to measure capacity;** • **Rulers, metre sticks, tape measures and trundle wheels to measure length;** • **Thermometers to measure temperature.**	**Mathematics** **LO 1: Numbers , operations and relationships.** **AS 6: Solves problems in context including contexts that may be used to build awareness of other Learning Areas as as Measurements in NS and Technology contexts**	**Estimating , measuring , recording mass** **Instruments and Units of mass** **Conversions between units of mass**	**Kitchen scale** **Book** **Bricks** **Bathroom scale** **Balance scale**
6	**CLUSTER 2 [LO 4]** **6.4.4 Estimates, measures, records, compares, and orders two-dimensional shapes and three-dimensional objects using S.I. units with appropriate precision for :** • **Mass using grams(g) and kilograms(kg)** • **Capacity using millilitres(ml) and litres(l);** • **Length using**	**Mathematics** **AS 6.1.1: Solves problems in context including contexts that may be used to build awareness of other Learning Areas as well as Human Rights/ Social, Economical and**	**Solves problems involving estimation , measuring , recording and calculating using S.I. Units.**	**Kitchen scale** **Book** **Bricks** **Bathroom scale** **Balance scale**

	millimetres(mm),centimetres(cm),metres(m) and kilometres(km); • Temperature using degree Celsius scale. 6.4.5 Estimates, measures, records, compares and orders 2 dimensional shapes and 3 dimensional objects using SI units with appropriate precision for: • Mass using grams (g) and kilograms (kg) • Capacity using millilitres and litres • Length using mm, cm, m and km • Temperature using degree Celsius scale. 6.4.6 Solves problems involving selecting, calculating with and converting between appropriate SI units of mass integrating appropriate contexts for Technology and Natural Sciences. 6.4.7 Uses appropriate measuring instruments (with understanding of their limitations) to appropriate levels of precision including : • Bathroom scales, kitchen scales and balances to measure mass. • Measuring jugs to measure capacity; • Rulers, metre sticks, tape measures and trundle wheels to measure length; • Thermometers to measure temperature.	environmental issues such as: - financial; - Measurements in NS and Technology contexts.		

4	**CLUSTER 3 [LO4]** **4.4.8 Investigates and approximates (alone and/or as a member of a group or team):** • **Perimeter using rulers or measuring tapes;** • **Area of polygons (using square grids and tiling) in order to develop an understanding of square units;** **Volume/capacity of three-dimensional objects (by packing or filling them) in order to develop an understanding of cubic units.**	**Mathematics** **LO 1: Numbers, operations and relationships** **AS 6 :Solves problems in context including contexts that may be used to build awareness of other Learning Areas as well as human rights, social, economic and environmental issues. Measurements in Natural Sciences.**	Investigate and approximates perimeter, area and volume of polygons.	**Rulers** **Measuring tapes** **Measuring cylinders** **Square grids** **Containers**
5	**CLUSTER 3 [LO 4]** **5.4.8 Investigates and approximates (alone and/or as a member of a group or team):** • **Perimeter using rulers or measuring tapes;** • **Area of polygons (using square grids and tiling) in order to develop an understanding of square units;** • **Volume/capacity of three-dimensional objects (by packing or filling them) in order to develop an understanding of cubic units.**	**Mathematics** **LO 3: Space and Shape** **AS 3: Investigates and compares (alone and/or as a member of a group or team) 2-D shapes and 3-D objects studied in this grade according to properties listed above by:** • **Making models of geometric objects using polygons they have cut;** • **Cutting open models or geometric objects(e.g. boxes) to trace their nets;** • **Drawing shapes**	Investigation and approximation of the Perimeter, Area of Polygons, Volume of 3-D objects	2-D shapes and 3-D objects Charts

		on grid paper.		
5	**<u>CLUSTER 4 [LO 4]</u>** **5.4.9 Recognises right angles in two-dimensional shapes, three-dimensional objects and the environment.**		**Recognition of right angles in 2-D shapes**	**Mathematical instruments**
6	**<u>CLUSTER 3 [LO 4]</u>** **6.4.8 Investigates and approximates (alone and/or as a member of a group or team):** • **Perimeter using rulers or measuring tapes;** • **Area of polygons (using square grids) in order to develop rules for calculating the area of squares and rectangles;** • **Volume/capacity of objects (by packing or filling them) in order to develop rules for calculating volume of rectangular prisms** **6.4.9 Investigates relationships between the perimeter and area of rectangles and square.** **Investigates relationships between surface area, volume and the dimensions of rectangular prisms**		**Investigation of relationships between perimeter , surface area and volumes of polygons.**	**Solid/concrete objects e.g. rectangles and squares.** **Different shapes in the immediate environment.**
6	**CLUSTER 4 [LO 4]** **6.4.10 recognises and describes angles in 2-D shapes ,3-D objects and the environment in terms of:** • **right angles;** • **angles smaller than right angles;** • **angles greater than right angles.**	**<u>Mathematics:</u>** **6.3.2- Describes and classifies 2-D shapes and 3-D objects in terms of properties:** • ***faces, vertices and edges;*** • ***lengths of sides;*** ***angle size of corners***	**Recognition of right angles in 2-D shapes**	**Mathematical instruments** **Concrete Scientific measuring apparatus.**

		NATURAL SCIENCES **LO 1: SCIENTIFIC INVESTIGATION** **AS 2** **Conducts investigations and collects data: Explores the possibilities in available materials, finding out how they can be used**		

4	**LO 5 DATA HANDLING** **CLUSTER 1 [LO 5]** **4.5.1 Poses simple questions about own school and family environment, and identifies appropriate data sources in order to address human rights, social, political, cultural, environmental and economic issues in that environment.** **4.5.2 Collects data (alone and/or as a member of a team) in the classroom and school environment to answer questions posed by the teacher and the class .** **4.5.3 Organises and records data using tallies and tables.** **4.5.4 Draws a variety of graphs to display and interpret (ungrouped) including:** • **Pictographs with a one-to-one correspondence between data and representation (e.g. one picture = one person)**	**NATURAL SCIENCES** **LO 1: SCIENTIFIC INVESTIGATION** **AS 2** **Conducts investigations and collects data: Explores the possibilities in available materials, finding out how they can be used**	**Posing questions** **Identification of data sources in different contexts** **Data collection, organizing and recording .**	**Worksheets** **Graphic displays of data** **Community members** **Magazines** **newspapers**

	• Bar graphs			
5	**CLUSTER 1 [LO 5]** 5.5.1 Poses simple questions about own school and family environment, and identifies appropriate data sources in order to address human rights, social, political, cultural, environmental and economic issues in that environment. 5.2.2 Makes and uses simple data collection sheets that involve counting objects in order to collect data (Alone and/or as a member of a group or team) to answer questions posed by the teacher and the class. 5.5.3 Organises and records data using tallies and tables.	**Mathematics** LO 1 AS 11: Uses a range of strategies to check solutions and judge the reasonableness of solutions. **Natural Sciences** LO 1 AS 2: Conducts investigations and collects data, carries out instructions and procedures involving a small number of steps	Posing Questions Making and uses simple data collection sheets Graphical representation	Data collection sheets Graph paper
6	**CLUSTER 1 [LO 5]** 6.5.1Poses simple questions about own school and family environment, and identifies appropriate data sources in order to address human rights , social, political, cultural , environmental and economic issues in that environment. 6.5.2 Uses simple data collection sheets (requiring tallies) and simple questionnaires (with yes/no type responses) in order to collect data (alone and/or as a member of a group	**NATURAL SCIENCES** **LO 1: SCIENTIFIC INVESTIGATIONS** Conducts investigations and collects data: Conducts simple test or surveys and records observations or responses.	Data gathering, representation, and analysis. Differences between samples and populations. Data organization and recording. Drawing of pictographs, bar and double bar graphs.	Collection sheets, Questionnaires. Mathematical instrument set.

	or team) to answer questions posed by the teacher, class and self. 6.5.3 Distinguishes between samples and populations. 6.5.4 Organises and records data using tallies and tables.			
4	<u>CLUSTER 2 [LO 5]</u> 4.5.4 Draws a variety of graphs to display and interpret data (ungrouped) including: • pictographs with a one-to-one correspondence between data and representation (e.g. one picture = one person); • bar graphs. 4.5.5 Critically reads and interprets data presented in a variety of ways including own representations and representations in the media –both words and graphs) to draw conclusions and make predictions sensitive to role of : • Context (e.g. rural or urban); • Other human rights issues	<u>Mathematics</u> LO 1: Numbers, operations and relationships. AS 6: Solves problems in context including contexts that may be used to build awareness of other Learning Areas, as well as human rights, social , economic and environmental issues such as : • Financial (including buying and selling, and simple budgets); • Measurements in Natural Sciences and Technology contexts. <u>NATURAL SCIENCES</u> <u>LO 1:SCIENTIFIC INVESTIGATIONS</u> <u>AS 3 :</u> Evaluates data and communicates findings: reports on the group's procedure and the results obtained.	Drawing of pictographs and bar graphs. Reading and interpreting data Drawing conclusions Making predictions	Charts Graph papers Mathematical sets Newspapers Magazines Different types of graphs

5	**CLUSTER 2 [LO 5]** **5.5.4 Examines ungrouped numerical data to determine the most frequently occurring score (mode) of the data set in order to describe central tendencies.** **5.5.5 Draws a variety of graphs to display and interpret data (ungrouped) including:** • **Pictographs with a many-one correspondence and appropriate keys (e.g. one picture = ten persons); Bar graphs.** **5.5.6 Critically reads and interprets data presented in a variety of ways (including own representations in the media – both words and graphs) to draw conclusions and make predictions sensitive to the role of:** • **context (e.g. rural or urban);** • **categories within the data (e.g. gender and race);** • **human rights issues.**	**Natural Sciences** **LO 1: AS 3 :** **Evaluates data and communicates findings: reports on the group's procedure and the results obtained**	**Reading, presentation and interpretation of data.** **Draw conclusions of findings.**	**Newspaper Clips** **Graphs.** **Grid paper.**
6	**CLUSTER 2 [LO 5]** **6.5.5 Examines ungrouped N numerical data to determine the most frequently occurring score (mode) and the mid-point (median) of the data set in order to describe central tendencies.**	**Natural Sciences** **LO 1: Scientific investigation** **6.1.3 Evaluate data and communicates findings relates observations and responses to the focus**	**Reading, interpretation and analysis of data.** **Drawing conclusions and making predictions.**	**Graph paper,** **Worksheets** **Media e.g. TV,** **News paper clips etc.** **Internet**

	6.5.6-Draws a variety of graphs by hand / technology to display and interprets data (grouped and ungrouped) including : • pictographs with many- one correspondence and appropriate keys 6.5.7-Critically reads and interprets data presented in a variety of ways (including own representations in the media- words, graphs, pie graphs) to draw conclusions in making predictions sensitive to the role of : • context (e.g. rural or urban , national or provincial) • categories within the data (e.g. age, gender, race) other human rights issues.	questions. Natural Sciences LO 1: Scientific investigation 6.1.3 Evaluate data and communicates findings relates observations and responses to the focus questions	Reading, interpretation and analysis of data. Drawing conclusions and making predictions.	Graph paper, Worksheets
4	<u>CLUSTER 3 [LO5]</u> 4.5.6Compares and classifies events daily as : • Certain that they will happen; or • Certain that they will not happen; or • Uncertain. 4.5.7 Counts the number of possible outcomes for simple trials.	<u>Mathematics</u> AS 1.1 : Counts backwards and forwards in a variety of intervals	Probability : Comparing and classifying events Counting possible outcomes	Counters Pack of cards Dice Coins
5	<u>CLUSTER 3 [LO 5]</u> 5.5.7 Compares, classifies and orders events from daily life on a scale from 'certain that they will happen' to 'certain that they will not happen'.	<u>Mathematics</u> 5.1.7 Solve problems that involve comparing two or more quantities of the	Probability : listing possible Outcomes	Coins Dice Cards Spinners Worksheet

	5.5.8 **Lists possible outcomes for simple experiments (including tossing a coin, rolling a die, and spinning a spinner).** **5.5.9** **Counts the frequency of actual outcomes for a series of trials.**	**same kind (ratio).**		

6	**<u>CLUSTER 3 [LO 5]</u>** **6.5.8-Predicts the likelihood of events in daily life based on observation, and places them on a scale from impossible to certain.** **6.5.9-Lists possible outcomes for simple experiments (including tossing a coin, rolling a die and spinning a spinner)** **6.5.10-Counts the frequency of actual outcomes for a series of trials.**	**<u>MATHEMATICS</u>** **<u>LO 1</u>: Numbers, operations and relationships** **6.1.11Uses a range of strategies to check solutions and judge the reasonableness of solutions**	**Probability and chance of possible variations.**	**Coins, pack of cards, dice, games**

GRADE 4 WORKSCHEDULE

DURATION	LO and AS$_S$	INTEGRATION	CONTENT IN CONTEXT	RESOURCES	ASSESSMENT FORMS;METHODS and TOOLS	TEACHING and LEARNING STRATEGIES
TERM 1						
1st -3rd week	CLUSTER 1 [LO 1] (3wks) 4.1.1 Count forwards and backwards in 2s, 3s, 5s, 10s, 25s, 50s and 100s between 0 and 10 000. 4.1.3 Recognises and represents the following numbers in order to describe and compare them : • Whole numbers to at least 4-digit numbers (including expanded notation of numbers to 1000) ; • Common fractions with different denominators including halves, quarters, and eighths; • Common fractions in diagrammatic form; • Decimal fractions of the form 0,5 in the context of measurement;	<u>Mathematics</u> AS 2.1: Investigates and extends numeric and geometric patterns looking for a relationship or rules. AS 5.1: Poses simple questions about own school and family environment, and identifies appropriate data sources in order to address human rights, social, political, cultural, environmental and economic issues in that environment. <u>Life Orientation</u> LO 2 Social Development AS: Compares the relationships between adults and children in a variety of situations in different cultural contexts.	Count forwards and backwards in 2s, 3s, 5s, 10s, 25s, 50s and 100s between 0 and 4 digit numbers 1 000. Expanded notation, odd and even numbers, of numbers up to 1 000 Multiples of single digit numbers Common Fractions Decimal fractions (1st dec. place) in the context of measurement Odd and Even numbers up to 1000 Place value recognition up to 4digits	Abacus Calculators Number Grid Wall charts Fraction walls Fraction diagrams Counters Bottle tops Stones	<u>FORM</u> Daily activities Assignment Test <u>METHOD</u> Teacher Peer Group <u>TOOL</u> Memorandum Checklist Rating Scales	Investigations Co-operative groups Discussions Brainstorming

	• Odd and even numbers to at least 1000. • Multiples of single-digit numbers to at least 100. 4.1.4 Recognises the place value of digits in whole numbers to at least 4-digit numbers. 4.1.5 Recognises and uses equivalent forms of the numbers listed above : • Common fractions with denominators that are multiples of each other; • Decimal fractions of the form 0,5; 1,5 and 2,5 and so on ,in the context of measurement		numbers			
4th week	CLUSTER 2 LO 1] (1 wk) 4.1.11Uses a range of strategies to check solutions and judges the reasonableness of solutions	<u>Mathematics</u> 4.2.5 Solves or completes number sentences by inspection or by trial-and-improvement, checking the solutions by substitution (e.g. $\Delta \div 4 = 12$).	Problem solving	Calculators Worksheets	<u>FORM</u> Daily activities Assignments Test <u>METHOD</u> Teacher Peer <u>TOOLS</u> Memorandum Checklist	Brainstorming Pairs

5th -6th week	CLUSTER 3 [LO1] (2 wks) 4.1.9 Performs mental calculations involving : • Addition and subtraction of a single digit to a 2-digit number e.g. 53+ 4; 63+4; 72-5;62-5. 4.1.10 Uses a range of techniques to perform written and mental calculations with whole numbers including : • Building –up and breaking down numbers; • Rounding off and compensating;	<u>Mathematics</u> AS 4.5 Estimates, measures, records, compares and orders 2 dimensional shapes and 3 dimensional objects using SI units with appropriate precision for: • Capacity using millilitres (ml) and litres (l); <u>Life Orientation</u> AS 3.6 :Applies appropriate study skills	Performs mental calculations involving : Addition and subtraction of a single digit to a 2-digit number e.g. 53+4;63+4; 72-5; 62-5. Multiplication of whole numbers to 10x10 Rounding off. Building up and Breaking down numbers	Calculator Number Grid Scatter board Counters	<u>FORM</u> Assignment Test Daily activities <u>METHOD</u> Teacher Group Peer <u>TOOL</u> Memorandum Rubric Checklist	Hot Potato Work in pairs Discussions
7th – 8th week	CLUSTER 1 [LO 2](1 wks) 4.2.1 Investigates and extends numeric and geometric patterns looking for a relationship or rules, including patterns : • Represented in physical or diagrammatic forms; • Not limited to sequences involving constant difference or ratio; • Found in natural and cultural	<u>Mathematics</u> AS 1.1: Counts backwards and forwards in a variety of ways <u>Arts and Culture</u> LO 1 :Creating, Interpreting and Presenting AS :Uses voice , body and found or made instruments to explore sounds …..	Numeric and Geometric Patterns Describing relationships and Formulating rules Creating patterns	Beads Matchsticks Number Grids Wall charts showing geometric designs Worksheets	<u>FORM</u> Investigations Assignment Test Daily activities <u>METHOD</u> Teacher Group Peer <u>TOOL</u> Memorandum Rubric Checklist	Investigations Discussions Pairs Question and answers Hot potatoes

	contexts; • Of the learners` own creation. 4.2.2 Describes observed relationships or rules in own words					
9th week	CLUSTER 1 [LO 3] (1 wks) 4.3.1 Recognises, visualises and names 2 dimensional shapes and 3 dimensional objects in the environment including; • Rectangular prisms , spheres, cylinders and other objects ; • Prisms and pyramids ; • Circles and rectangles ; • Polygons in terms of the number of sides up to 8 sided figures. 4.3.2Describes, sorts and compares 2 dimensional shapes and 3 dimensional objects from the environment according to geometrical properties including : • Shapes of faces , • Number of sides ; • Flat and curved surfaces , straight and curved sides.	<u>Mathematics</u> AS 4.5: Estimates, measures, compares and orders 2-D shapes and 3-D objects … <u>Tech:</u> LO 1: Technological processes and Skills AS 1.8 Uses suitable tools and materials to make products by measuring, marking out , cutting simple forms in a form of materials ……	Identify and name different 2D shapes and 3D objects : Rectangular prisms , spheres, cylinders and other objects ; Prisms and pyramids ; Circles and rectangles ; Polygons in terms of the number of sides up to 8 sided figures. Describe, sort and compare 2D and 3D shapes according to their properties such as shape of faces, number of sides, flat and curved surfaces	Grid paper Pair of Compasses Glue Pair of Scissors 2-D shapes and 3-D objects	<u>FORM</u> Assignment Test Investigation Project <u>METHOD</u> Teacher Group <u>TOOL</u> Memorandum Rubric Checklist	Jigsaw Buzz Group Brainstorming Cooperative group work

			straight and curved sides			
10th -11th week	CLUSTER 2 [LO 4] (2 wk) 4.4.5 Estimates, measures, records, compares and orders 2 dimensional shapes and 3 dimensional objects using SI units with appropriate precision for: • Length using millimetres(mm), centimetres (cm), metres (m) and kilometres(km). 4.4.6 Solves problems involving selecting, calculating with and converting between appropriate SI units of length integrating appropriate contexts for Technology and Natural Sciences. 4.4.7 Uses appropriate measuring instruments (with understanding of their limitations) to appropriate levels of precision including : Rulers, metre sticks , tape measure and trundle wheels to measure length	<u>Mathematics</u>. 4.3.2Describes, sorts and compares 2 dimensional shapes and 3 dimensional objects from the environment according to geometrical properties including : • Shapes of faces , • Number of sides ; Flat and curved surfaces , straight and curved sides. <u>Arts & Culture:</u> LO 1: Creating Interpreting & Presenting.	Estimating and measuring Length Use Instruments of measuring length Use units of length. e.g. mm, cm, m and km and be able to do conversions of these units.	Mathematical Sets Tape measures Trundle Wheels String Metre Stick Calculators	<u>FORM</u> Assignment Test Daily activities Teacher Group Peer <u>TOOL</u> Memorandum Rubric Checklist Observation Sheets	Jigsaw Buzz Group Brainstorming Problem posing
TERM 2						

1st -3rd week	CLUSTER 1 [LO 1] (3 wks) 4.1.1.Count forwards and backwards in a variety of intervals (including 2s, 3s , 5s, 9s,10s,11s ,25s, 50s and 100s) between 0 and at least 10 000 4.1.2 Describes and illustrates various ways of counting in different cultures (including local) throughout history. 4.1.3 Recognises and represents the following numbers in order to describe and compare them : • Whole numbers to at least 4-digit numbers ,including expanded notation of numbers to 5000; • Common fractions with different denominators including halves, thirds , quarters, sixths, and eighths; • Common fractions in diagrammatic form; • Decimal fractions of the form 0,5and 1,5; in the context of measurement; • Multiples of single numbers to at	<u>Mathematics</u> AS 2.1: Investigates and extends numeric and geometric patterns looking for a relationship or rules. AS 4. 4: Describes and illustrates ways of measuring and representing time in different cultures throughout history <u>Life Orientation</u> LO 2 Social Development AS: Compares the relationships between adults and children in a variety of situations in different cultural contexts.	Number recognition and place value in whole numbers . Up to 2000 Counting in different cultures Common Fractions Multiples of each other Decimal fractions	Abacus Calculators Number Grid Worksheets Wall charts Fraction walls Fraction diagrams Place value chart Counters Bottle tops	<u>FORM</u> Assignment Test Verbal presentations Daily activities <u>METHOD</u> Teacher Assessment Group Peer Self <u>TOOL</u> Memorandum Rubric Checklist Observation Sheets Recording sheet	Pair and group work Investigations Discussions

	least 100. 4.1.4 Recognises the place value of digits in whole numbers to at least 4-digit numbers. 4.1.5 Recognises and uses equivalent forms of the numbers listed above : • Common fractions with denominators that are multiples of each other; • Decimal fractions of the form 0,5; 1,5 and 2,5 and so on ,in the context of measurement					
4th week	CLUSTER 2 [LO 1] (1 wk) 4.1.6 Solves problems in context including contexts that may be used to build awareness of other Learning Areas, as well as human rights, social , economic and environmental issues such as : • Financial (including buying and selling, and simple budgets); • Measurements in Natural Sciences and Technology contexts.	Mathematics AS 2.4 Writes number sentences to describe a problem, including problems within contexts that may used to build awareness of human rights, social, economic, cultural and environmental issues. EMS AS 3.3: Completes source documents (e.g. receipts; deposit slips ; cheques) AS 3.6: Investigates the various methods of savings and investments (e.g. savings , accounts , fixed deposits , shares , unit trusts) , and calculates returns on a variety of investments .	Problem solving : Buying and selling Simple budgets Estimations and calculations Rounding off to the nearest 10; 100; 1000 Addition and subtraction of whole numbers .	Financial Statements Calculators Workbooks	FORM Assignment Test Daily activities METHOD Teacher Group Peer Self TOOL Memorandum Rubric Checklist Observation Sheets Recording sheet	Problem posing Cooperative group work Discussion Pair and group work

		AS 4.4: Evaluates the financial viability of business (e.g. start up costs , production costs , sales, profit)				
5th Week	CLUSTER 2 [LO1] 4.1.11Uses a range of strategies to check solutions and judges the reasonableness of solutions	<u>Mathematics</u> AS 2.1: Investigates and extends numeric and geometric patterns looking for a relationship or rules. AS 4. 4: Describes and illustrates ways of measuring and representing time in different cultures throughout history	Number recognition and place value in whole numbers . Up to 2000 Counting in different cultures	Abacus Calculators Number Grid Worksheets	<u>FORM</u> Assignment Test Verbal presentations Daily activities <u>METHOD</u> Teacher Assessment Group Peer Self <u>TOOL</u> Memorandum Rubric Checklist Observation Sheets Recording sheet	Pair and group work Jigsaw Discussions

6th week	CLUSTER 3 [LO1] (1 wk) 4.1.8 Estimates and calculates by selecting and using operations appropriately to solving problems that involve • Rounding off to the nearest 10;100 or 1000 • Addition and subtraction of whole numbers with at least 4 – digits 4.1.9 Performs mental calculations involving : Addition and subtraction of a 2-digit number where one number is a whole ten e.g. 39+10; 39+30; 97-20; 23-10. 4.1.10 Uses a range of techniques to perform written and mental calculations with whole numbers including : • Building –up and breaking down numbers; • Rounding off and compensating; • Doubling and halving; • Using a number line ; • Using a calculator.	<u>Mathematics</u> AS 2.3 Determines output values for given input values using flow diagrams. AS 4.8: Investigates and approximates (alone and /or as a member or a group/ team) perimeter using rulers or measuring tape. <u>Life Orientation</u> AS 3.5: Reflects and learns from own personal experience of working in a group .	4 basic operations using whole numbers Rounding off Building –up and breaking down of numbers (4 digit numbers) Doubling and halving Calculator skills Using a number line	Calculators Multiplication tables on charts	<u>FORM</u> Assignment Test Daily activities <u>METHOD</u> Teacher Group Self <u>TOOL</u> Memorandum Rubric Checklist Observation Sheets Recording sheet	Questions and answers Discussions Brainstorming

7th week	CLUSTER 1[LO2] (1 wk) 4.2.1 Investigates and extends numeric and geometric patterns looking for a relationship or rules, including patterns : • Represented in physical or diagrammatic forms; • Not limited to sequences involving constant difference or ratio; • Found in natural and cultural contexts; • Of the learners` own creation. 4.2.2 Describes observed relationships or rules in own words	<u>Mathematics</u> AS 1.1: Counts backwards and forwards in a variety of ways 3.5 Makes 2-dimensional shapes, three – dimensional objects and patterns from geometric objects and shapes (tangrams) with a focus on tiling (tessellation) and line symmetry. <u>Arts & Culture:</u> LO 1: Creating Interpreting & Presenting	Investigating numeric and geometric patterns Creating own patterns Describing observed relationships or rules Determine input and output values verbally or using flow diagrams Number sentences	Matchsticks Glue Pattern Charts Grid paper Flow chart diagrams	<u>Form</u> Daily activities Investigations Tests <u>Method</u> Teacher Group Peer Self <u>TOOL</u> Rubric Memorandum Checklist	Jigsaw Brainstorming Investigation
8th Week	CLUSTER 2 [LO2] (1wk) 4.2.3 Determines output values for a given input values using : • Verbal descriptions ; • Flow diagrams	<u>Mathematics</u> AS.1.11 Uses a range of strategies to check solutions and judges the reasonableness of solutions	Input and output values Flow diagrams	Worksheets Calculators	<u>FORM</u> Daily activities Assignments <u>METHOD</u> Teacher Self Peer <u>TOOL</u> Memorandum Rubric	Pairs Question and answers Verbal presentations

9th Week	CLUSTER 3 [LO2] (1 Wk) 4.2.6 Determines , through discussion and comparison , the equivalence of different descriptions of the same relationship or rule presented : • Verbally • In flow diagrams • By number sentences	Mathematics AS1.11 Uses a range of strategies to check solutions and judges the reasonableness of solutions	Equivalence, relationships and rules Flow diagrams Number sentences	Work sheets Number grid	FORM Daily activities METHOD Teacher Peer TOOL Memorandum	Discussion Questions and answers Pairs
10th week	CLUSTER 1 [LO 3] (1 wk) 4.3.3 Investigates and compares (alone and/or as a member of a group or team) 2-dimensional shapes and 3- dimensional objects studied in this grade according to properties listed above by: • Making 3-dimensional models using cut-out polygons (supplied) • Drawing shapes on grid paper. 4.3.4 Recognises and describes lines of symmetry in 2 dimensional shapes, including those in nature and its cultural art forms.	Mathematics AS 2.1 Investigates and extends numeric and geometric patterns looking for a relationship or rules, including patterns : • Represented in physical or diagrammatic forms; • Not limited to sequences involving constant difference or ratio; • Found in natural and cultural contexts; • Of the learners` own creation. NS LO 1: Scientific investigations	Line Symmetry and Tessellation Making 2 dimensional shapes Making 3dimensional models	Cardboards 2-D shapes e.g. boxes 3-D cardboard models Cubes Traffic signs Pictures	FORM Assignment Test Investigations METHOD Teacher Group TOOL Memorandum Rubric Checklist Observation Sheets Recording sheet	Pair work Cooperative group work Discussions Brainstorming

11th Week	CLUSTER 2 [LO 3) (1 wk) 4.3.5 Makes 2-dimensional shapes, three – dimensional objects and patterns from geometric objects and shapes (tangrams) with a focus on tiling (tessellation) and line symmetry.	AS 2.1 Investigates and extends numeric and geometric patterns looking for a relationship or rules, including patterns : • Represented in physical or diagrammatic forms; • Found in natural and cultural contexts; • Of the learners` own creation	Geometric shapes and objects Tessellation and line symmetry	3-D objects Work sheets	<u>FORM</u> Daily activities Assignments <u>METHOD</u> Teacher Self <u>TOOLS</u> Check list Observation Sheet	Brainstorming Gallery walk
12th – 13th weeks	CLUSTER 1 [LO4] (2 wks) 4.4.1 Reads, tells and writes analogue , digital and 24-hour time to at least the nearest minute and second . 4.4.2 Solves problems involving calculation and conversion between appropriate time units including seconds, minutes , hours , days , weeks , months and years. 4.4.3Uses time measuring instruments to appropriate levels of precision, including watches and clocks . 4.4.4 Describes and illustrates ways of measuring and representing time in	<u>Mathematics</u> AS 1.2 Describes and illustrates various ways of counting in different cultures . <u>Social Sciences</u> LO 1: Historical enquiry	Writing analogue, and digital and 24 hour time Calculations and conversions between units of time including seconds, minutes , hours , days , weeks , months and years. Time measuring instruments. Ways of measuring and representing time in different	Analogue Clock Digital watch Calendars	<u>FORM</u> Assignment Test Daily activities <u>METHOD</u> Teacher Group Self <u>TOOL</u> Memorandum Rubric Checklist Observation sheets Recording sheets	Pair work Cooperative group-work Discussions Brainstorming

	different cultures throughout history.		cultures			
14th week	CLUSTER 2 [LO 4] (1wk) 4.4.5 Estimates, measures, records, compares and orders 2 dimensional shapes and 3 dimensional objects using SI units with appropriate precision for: • Mass using grams (g) and kilograms (kg) 4.4.6 Solves problems involving selecting, calculating with and converting between appropriate SI units of mass integrating appropriate contexts for Technology and Natural Sciences. 4.4.7 Uses appropriate measuring instruments (with understanding of their limitations) to appropriate levels of precision including : Bathroom scales, kitchen scales and balances to measure mass.	Mathematics AS1.6 Solves problems in context including contexts that may be used to build awareness of other Learning Areas, as well as human rights, social, economic and environmental issues such as measurements in NS and Technology contexts NS LO 1: Scientific investigations	Estimating , measuring , recording , comparing and ordering SI units for mass using grams (g) and kilograms (kg) Instruments and Units of mass Conversions between units of mass	Kitchen scale Book Bricks Bathroom scale Balance scale	FORM Assignment Test Daily activities METHOD Teacher Group Self TOOL Memorandum Rubric Checklist Observation Sheets Recording sheet	Cooperative group work Discussions Brainstorming
TERM 3						
1st week	CLUSTER 1 [LO 1] (1 wk) 4.1.1 Count forwards and backwards in a variety of intervals (including 2s, 3s ,4s, 5s, 9s,10s,11s ,20s, 25s, 50s and 100s) between 0 and at least	Mathematics AS 2.1: Investigates and extends numeric and geometric patterns looking for a relationship or rules. NS LO 3: Science , Society	Number recognition , place values and 4 basic operations in whole numbers up	Abacus Calculators Number Grid Wall charts Counters Bottle tops Stones		Questions and Answer Cooperative group work Discussion

	10 000. 4.1.3 Recognises and represents the following numbers in order to describe and compare them : • Whole numbers to at least 4-digit numbers ; 4.1.4 Recognises the place value of digits in whole numbers to at least 4-digit numbers.	and environment	5 000			Pair and group work
2rd week	CLUSTER 2 [LO 1] (1wk) 4.1.3 Recognises and represents the following numbers in order to describe and compare them : • Common fractions with different denominators including halves, thirds , quarters, fifths, sixths, and eighths; • Common fractions in diagrammatic form; 4.1.4 Recognises the place value of digits in whole numbers to at least 4-digit numbers. 4.1.9 Performs mental calculations involving : • Addition and subtraction of a 2 digit numbers	<u>Mathematics</u> AS 2. 1: Investigates and extends numeric and geometric patterns looking for a relationship or rules. <u>Social Sciences</u> LO 1 : Historical Enquiry LO1: Geographic Enquiry <u>Mathematics</u> AS 2.3 Determines output values for given input values using flow diagrams.	Recognize, represent and compare common fractions with different denominators such as, halves thirds , quarters, fifths, sixths, and eighths; Place values up to 4 digit values Addition, subtraction and multiplication of whole numbers	Fraction number line Tangrams Abacus Calculators Number Grid Wall charts Fraction walls Fraction diagrams Place value chart Counters Bottle tops A-4 paper Crayons Glue Pairs of scissors Work sheets Number grids	<u>FORM</u> Class work Assignment Test <u>METHOD</u> Teacher Peer Group <u>TOOL</u> Memorandum Checklist Rating Scales Observation sheet	Questions and Answer Cooperative group work Discussion Pair and group work

	where one number is a whole ten e.g. 39+ 10; 97 – 20; 23 - 10. Multiplication of whole numbers to at least 10x10					
3rd week	CLUSTER 2 [LO 1] (1 wk) 4.1.7 Solves problems that involve : • Comparing two or more quantities of the same kind (ratio); • Comparing two quantities of different kinds (rate, kg/R).	Mathematics AS 4.6: Solves problems involving , selecting, calculating with and converting between appropriate SI units listed above, integrating appropriate context for Technology and Natural Science .	Ratio and Rates	Calculators Napier`s rods Stones Counters	FORM Daily activities Assignment Test METHOD Teacher Peer Group TOOL Memorandum Checklist Rating Scales.	Problem posing Pair and group work
4th week	CLUSTER 3 [LO 1] (1wk) 4.1.8 Estimates and calculates by selecting and using operations appropriately to solving problems that involve • Addition of common fractions in context • Multiplication of at least whole 2- digit by 2 –digit number • Division of at least whole 3- digit by 1-digit number.	Mathematics AS 5.7 : Counts the number of possible outcomes for simple trials.	Estimating, calculating using operations in problem solving that involve Addition of common fractions in context Multiplication of at least whole 2- digit by 2 – digit number Division of at least whole 3-	Wall charts Fraction walls Fraction diagrams Place value chart Counters	FORM Daily activities Assignment Test METHOD Teacher Peer Group TOOL Memorandum Checklist Rating Scales.	Question and Answer Cooperative group work Discussion Pair and group work

	4.1.9 Performs mental calculations involving : 4.1.10 Uses a range of techniques to perform written and mental calculations with whole numbers including : • Building –up and breaking down numbers; • Rounding off and compensating; • Doubling and halving; • Using a number line ; • Using a calculator.		digit by 1-digit number Mental and written calculations Addition and subtraction of a 2-digit numbers where one number is a whole ten e.g. 39+10; 39+30; 97-20; 23-10.			
5th Week	CLUSTER 2 [LO 1] (1 wk) 4.1.11Uses a range of strategies to check solutions and judges the reasonableness of solutions	<u>Mathematics</u> AS 4.2 Solves problems involving calculations and conversions between appropriate time units including seconds, minutes, hours, days, weeks, months and years.	Problem solving.	Calculators Number Grid Worksheets	<u>FORM</u> Assignment Test Verbal presentations Daily activities <u>METHOD</u> Teacher Assessment Group Peer Self <u>TOOL</u> Memorandum Rubric Checklist Observation Sheets Recording sheet	Pair and group work Jigsaw Discussions

6th week	CLUSTER 2 [LO 2] (1 wk) 4.2.4 Writes number sentences to describe a problem situation, including problems within contexts that may be used to build awareness of human rights, social, economic, cultural and environmental issues . 4.2.5 Solves or completes number sentences by inspection or by trial-and-improvement, checking the solutions by substitution (e.g. ∆ ÷ 4 = 12).	<u>Mathematics</u> AS 1.9: Performs mental calculations involving: • addition and subtraction; • multiplication of whole numbers to at least 10x10. AS 1.12: Recognises , describes and uses : The reciprocal relationship between multiplication and division ……..,. <u>Technology</u> LO :Technology , society and environment	Number sentences	Worksheets	<u>FORM</u> Daily activities Assignment Test <u>METHOD</u> Teacher Peer Group <u>TOOL</u> Memorandum Checklist Rating Scales	Questions and Answer Cooperative group work Discussion Pairs
7th week	CLUSTER 3 [LO 2] (1 wk) 4.2.6 Determines through discussion and comparison, the equivalence of different descriptions of the same relationship or rule presented ; • Verbally; • In flow diagrams ; • By number sentences	<u>Mathematics</u> AS 1.1: Counts backwards and forwards in a variety of ways <u>Arts and Culture</u> LO 1 :Creating, Interpreting and Presenting AS:	Representing information and rules in a variety of ways : Verbally Flow diagrams Number sentences	Beads Matchsticks Number Grid Wall charts showing geometric designs Worksheets	<u>FORM</u> Daily activities Assignment Test <u>METHOD</u> Teacher Peer Group <u>TOOL</u> Memorandum Checklist Rating Scales	Questions and Answer Cooperative group work Discussion Pair and group work

8th week	CLUSTER 2 [LO 4] (1 wk) 4.4.5 Estimates, measures, records, compares and orders 2 dimensional shapes and 3 dimensional objects using SI units with appropriate precision for: • Capacity using millilitres (ml) and litres (l); 4.4.6 Solves problems involving selecting, calculating with and converting between appropriate SI units of capacity integrating appropriate contexts for Technology and Natural Sciences. 4.4.7Uses appropriate measuring instruments (with understanding of their limitations) to appropriate levels of precision including : • Measuring jugs to measure capacity.	<u>Mathematics</u> AS 6.2 : Solves problems in contexts including contexts that may be used to build awareness of other Learning Area …….. Measurements in Natural Sciences and Technology contexts <u>NS:</u> LO 3: Science, Society and the Environment.	Capacity: Problem solving Instruments and units of capacity Conversions	Cups Bottles Cans Milk Cartoons Measuring Jugs	<u>FORM</u> Daily activities Assignment Test Investigation Project <u>METHOD</u> Teacher Peer Group <u>TOOL</u> Memorandum Checklist Rating Scales Rubric	Questions and Answer Cooperative group work Discussion Pair and group work
9th week	CLUSTER 1 [LO 5] (1 wk) 4.5.1 Poses simple questions about own school and family environment, and identifies appropriate data sources in order to address human rights , social, political, cultural, environmental and economic issues in that	<u>Mathematics</u> AS 3.1 Recognises and represents whole numbers to at least 4-digit numbers <u>Social Sciences</u> LO 2 : Historical Knowledge and Understanding	Posing questions Identification of data sources in different contexts	Worksheets Graphic displays of data Community members Political leaders	<u>FORM</u> Assignment Test Daily activities Investigation <u>METHOD</u> Teacher Group Self	Pair work Cooperative group work Discussions Brainstorming Debates

	environment.	AS :			TOOL Memorandum Rubric Checklist Recording sheet Questionnaires Rating scale	Jigsaw Problem posing Investigations
10th week	CLUSTER 1 LO 5] (2 days) 4.5.2 Collects data (alone and/or as a member of a team) in the classroom and school environment to answer questions posed by the teacher and the class . 4.5.3 Organises and records data using tallies and tables.	Mathematics AS 3.1 Recognises and represents whole numbers to at least 4-digit numbers Social Sciences Lo 1 : Historical Enquiry	Data collection, organizing and recording . Tallies and tables	Worksheets Newspapers Magazines TV	FORM Assignment Test Daily activities METHOD Teacher Group Self TOOL Memorandum Rubric Checklist Recording sheet	Pair work Cooperative group work Discussions Brainstorming
10th week	CLUSTER 1 [LO 5] (3 days) 4.5.4Draws a variety of graphs to display and interpret (ungrouped) including : • Pictographs with a one-to-one correspondence between data and representation (e.g. one picture = one person) • Bar graphs .	Mathematics AS 3.1 Recognises and represents whole numbers to at least 4-digit numbers Social Sciences LO 2 : Historical Knowledge and Understanding	Analyzing and representing data : Pictographs Bar graphs	Mathematical Sets Graph Papers	FORM Assignment Daily activities METHOD Teacher Assessment Group Assessment TOOL Memorandum Rubric Checklist	Discussions Questions and Answers Gallery Walk Verbal Presentations

TERM 4						
1st–2nd week	CLUSTER 1 [LO 1] (2 wks) 4.1.1Count forwards and backwards in a variety of intervals (including 2s, 3s ,4s, 5s, 9s,10s,11s ,25s, 50s and 100s) between 0 and at least 10 000. 4.1.3 Recognises and represents the following numbers in order to describe and compare them : • Whole numbers to at least 4-digit numbers ; • Common fractions with different denominators including halves, thirds , quarters, fifths, sixths, sevenths and eighths; ♦ Common fractions in diagrammatic form.	<u>Mathematics</u> AS 2. 1: Investigates and extends numeric and geometric patterns looking for a relationship or rules. AS 5. 1: Poses simple questions about own school and family environment	Counting in intervals up to 10 000 Number recognition Representation of whole numbers, common fractions with different denominators, diagrammatic forms.	Abacus Calculators Number Grid Wall charts Fraction walls Fraction diagrams Counters Bottle tops Stones	<u>FORM</u> Assignment Daily activities Test <u>METHOD</u> Teacher Group <u>TOOL</u> Memorandum Rubric Checklist	Discussions Questions and Answers Cooperative groups Verbal Presentations

3rd week	CLUSTER 2 [LO 1] (1wk) 4.1.11 Uses a range of strategies to check solutions and judges the reasonableness of solutions	<u>Mathematics</u> AS 5.7 Counts the number of possible outcomes for simple trials.	Problem solving	Calculators Worksheets	<u>Forms</u> Daily activities <u>Method</u> Teacher Peers <u>Tools</u> Observation sheets Memorandum	Questions and answers Pairs Verbal presentations
4th week	CLUSTER 3 [LO 1](1wk) 4.1.8 Estimates and calculates by selecting and using operations appropriate to solving problems that involves: • Division of at least whole 3-digit by 1-digit numbers; • Equal sharing with remainders. 4.1.9 Performs mental calculations involving : • Addition and subtraction of a 2-digit numbers where one number is a whole ten e.g. 39+10; 39+30; 97-20; 23-10. • Multiplication of whole numbers to at least 10x10 4.1.10 Uses a range of techniques to perform written and mental	<u>Mathematics</u> AS 2.1: Investigates and extends numeric and geometric patterns looking for a relationship or rules. AS 5.7: Counts the number of possible outcomes for simple trials . <u>Life Orientation</u> LO 3 : Personal Development AS :	Estimations and calculations involving division of whole numbers Mental calculations involving addition, subtraction and multiplication of whole numbers Mental and written calculations involving doubling and halving building- up and breaking down of numbers Rounding off and	Calculators Number charts Worksheets	<u>FORM</u> Assignment Daily activities Test <u>METHOD</u> Teacher Group <u>TOOL</u> Memorandum Rubric Checklist	Discussions Questions and Answers Cooperative groups Investigation Buzz groups Brainstorming

	calculations with whole numbers including : • Building –up and breaking down numbers; • Rounding off and compensating; • Doubling and halving; • Using a number line ; • Using a calculator.		compensating. Calculations using: Calculator and number line			
5th week	CLUSTER 4 [LO 1] (1 wk) 4.1.12 Recognises, describes and uses : • The reciprocal relationship between multiplication and division (e.g. if 5x3= 15 then 15÷3 =5 and 15÷5=3); • The equivalence of division and fractions (e.g. 1÷8=1/8); • The commutative , associative and distributive properties with whole numbers(the expectation is that learners should be able to use the properties and not necessarily know the names	<u>Mathematics</u> AS 2.5 Solves or completes number sentences or by trial-and-improvement, checking the solutions by substitutions (e.g. □ ÷ 4= 12)	Place value in whole numbers and reciprocal relationship Commutative, Associative, Distributive properties.	Worksheets	<u>FORM</u> Daily activities Assignments Tests <u>METHOD</u> Teacher Group Peer <u>TOOLS</u> Memorandum Rubric Checklist	Pairs Questions and answers Verbal presentations

6th week	CLUSTER 1 [LO 3] (1wk) 4.3.6 Recognises and describes natural and cultural 2 dimensional shapes , 3 dimensional objects and patterns in terms of geometric properties.	Mathematics AS 3.1: Recognises and represents whole numbers to at least 4-digit numbers AS 2.1: Investigates and extends ... Life Orientation LO 3 : Personal Development AS : Demonstrates and reflects on decision making skills .	Recognition and description of 2D shapes and 3D Objects Properties of 2D shapes and 3D objects	Pictures showing 2-D shapes and 3 D objects Models	FORM Assignment Daily activities Test METHOD Teacher Group Peer TOOL Memorandum Rubric Checklist	Discussions Questions and Answers Cooperative groups Investigation Jigsaw Pairs
7th week	CLUSTER 3 [LO 3] (1 wk) 4.3.7 Describes changes in the view of an object held in different positions. 4.3.8 Locates position on a coded (labelled) grid including : • Maps from given instructions; • Column and row.	Mathematics AS 1.1: Counts backwards and forwards in a variety of intervals AS 3.3: Investigates and compares 2-dimensional shapes and 3 dimensional objects …… Social Science LO 1 Geographical Enquiry AS : Uses the information from the sources to present well-thought-out answers to	Objects in different positions Locates position on a coded grid	Grid paper Models Maps	FORM Assignment Test Investigations Daily activities METHOD Teacher Group TOOL Memorandum Rubric Checklist Observation Sheets Recording sheet	Discussions Questions and Answers Cooperative groups Investigation Jigsaw Pairs

		questions				
8th week	CLUSTER 3 [LO 4] (1wk) 4.4.8 Investigates and approximates (alone and/or as a member of a group or team) : • Perimeter using rulers or measuring tapes ; • Area of polygons (using square grids and tiling) in order to develop an understanding of square units • Volume / capacity of 3 dimensional objects (by packing or filling them) in order to develop an understanding of cubic units .	Mathematics AS 1.1 : Counts backwards and forwards in a variety of intervals AS 4.5: Estimates , measures , records , compares and orders two-dimensional shapes and three – dimensional objects using SI units…….. AS 4.6:Solves problems involving selecting, calculating with and converting between appropriate SI units…….. Social Sciences LO 1 : Geographical Enquiry	Investigating and approximating : Perimeter ,Area of polygons and Volume / Capacity of 3Dobjects	Rulers Measuring tapes Square grid papers Polygons Pictures Worksheets	FORM Assignment Test Investigations Project Daily activities METHOD Teacher Group Peer TOOL Memorandum Rubric Checklist Observation Sheets Recording sheet	Discussions Questions and Answers Cooperative groups Investigation Jigsaw Pairs

		AS : Uses information to suggest answers				
9th week	CLUSTER 2 [LO 5] (1wk) 4.5.5 Critically reads and interprets data presented in a variety of ways (including own representations and representations in the media –both words and graphs) to draw conclusions and make predictions sensitive to role of : • Context (e.g. rural or urban); • Other human rights issues	<u>Mathematics</u> AS 1.3: Recognises , represents whole numbers to at least 4-digit numbers AS 1.6 Solves problems in context including contexts that may be used to build awareness of other Learning Areas , as well as well as human rights …… <u>Life Orientation</u> LO 2: Social Development AS : Discusses the application of human rights as stated in the South African Constitution LO 3 : Personal Development AS : Demonstrates and reflects on decision – making skills	Reading and interpreting data Drawing conclusions Making predictions	Newspapers Magazines Different types of graphs	<u>FORM</u> Assignment Test Daily activities <u>METHOD</u> Teacher Group Peer <u>TOOL</u> Memorandum Rubric Checklist Observation Sheets Recording sheet	Discussions Questions and Answers Cooperative groups Jigsaw Pairs

10th week	CLUSTER 3 [LO 5] (1wk) 4.5.6Compares and classifies events daily as : • Certain that they will happen; or • Certain that they will not happen; or • Uncertain. 4.5.7 Counts the number of possible outcomes for simple trials.	<u>Mathematics</u> AS 3.2 :Recognises and represents common fractions with different denominators in order to describe and compare them. AS 7.1 Solves problems that involve ratio <u>EMS</u> AS : Identifies enterprises and events in own community	Probability : Comparing and classifying events Counting possible outcomes	Counters Pack of cards Dice Coins	<u>FORM</u> Assignment Test Daily activities <u>METHOD</u> Teacher Group <u>TOOL</u> Memorandum Rubric Checklist	Discussions Questions and Answers Hot potato Investigation Buzz groups Brainstorming

WORK SCHEDULE Grade 5

TERM	LO and AS's	INTEGRATION	CONTENT IN CONTEXT	RESOURCES	ASSESSMENT FORMS, METHODS and TOOLS	TEACHING and LEARNING STRATEGIES
Wk 1-3	Cluster 1 LO1:Numbers, operations and relationships 5.1.1 Counts forwards and backwards in whole number intervals and fractions. 5.1.2 Describes and illustrates different ways of writing numbers in different cultures (including local) throughout history. 5.1.3 Recognises and represents the following numbers in order to describe and compare them: • whole numbers to at least 4-digit numbers; • common fractions to at least eights; • decimal fractions of the form 0,5, 1,5 and 2,5 and so on, in the context of measurement; • 0 in terms of additive inverses • 1 in terms of multiplicative inverses • multiples of a single digit number to at least 100. factors of at least any two digits whole number. 5.1.4 Recognises the place value of digits in	Mathematics LO4: Measurement AS1: Reads, tells and writes analogue, digital and 24 hour time to at least the nearest minute and second. Life Orientation: AS: Compares the relationships between adults and children in a variety of situations in different cultural contents.	Counting backwards & forwards in whole numbers & fractions. Counting in different cultural styles Recognition and representation of: Whole numbers; Common Fractions; Decimal fractions and Place value.	Counters Number grid Abacus Watch Number lines Fraction wheel and Strips Worksheet	Forms Diagnostic Test Classworks Methods Teacher Group Assessment Observation Tools Memoranda	Problem posing Cooperative groups

	whole numbers to at least 4-digit numbers.					
Wk 4 - 7	<u>Cluster 3 [LO 1]</u> 5.1.8 Estimates and calculates by selecting and using operations appropriate to solving problems that involve: • rounding off to the nearest 10, 100 or 1 000; • addition and subtraction of whole numbers with at least 4 digits; • addition of common fractions with the same denominator and whole numbers with common fractions (mixed numbers); • multiplication of at least whole 2-digit by 2-digit numbers to 500; • division of at least whole 3-digit by 1-digit numbers; • finding fractions of whole numbers which result in whole numbers; <u>Cluster 3 [LO 1]</u> 5.1.9 Mental calculations involving addition, subtraction and multiplication (10x10)	<u>Mathematics</u> LO 4: Measurement. AS 2: Solves problems involving calculations and conversions between appropriate time units including decades centuries and millennia.	Rounding Off Four Basic Operations using Whole Numbers up to 4 digit numbers Addition of common fractions with same denominator.	Counters Number grid Abacus Number lines Calculators Fraction walls, strips Concrete objects.	<u>Forms</u> Classworks Tests <u>Methods</u> Teacher Group Assessment Observation <u>Tools</u> Memoranda	Groupwork Verbal presentations Problem Solving

	5.1.10 Uses a range of techniques to perform written and mental calculations with whole numbers including: • Adding and subtracting in columns; • Building up and breaking down numbers; • Rounding off and compensating; • Doubling and halving; • Using a calculator.		Calculations mentally using basic operations.	Counters Number grid Abacus Number lines Calculators		Problem posing Cooperative groups Problem Solving Verbal presentation
Wk 8	Cluster 1 (LO 2) LO2: Patterns, Functions and Algebra 5.2.1 Investigates and extends numeric and geometric patterns looking for a relationship or rules, including patterns: • represented in physical or diagrammatic form; • of the learner's own creation 5.2.2 Describes observed relationships or rules in own words. Cluster 2 (LO 2) 5.2.3 Determines output values for given input values using: • Verbal descriptions Flow diagrams.	Mathematics LO1 Numbers, operations and relationships AS 1 Counts forwards and backwards in whole number intervals and fractions Technology LO1: Technological processes and skills Arts and Culture LO1 AS1: Visual Arts Designs and creates artworks and craftworks which explore the use of natural and geometric shapes,	Identify and investigate Geometrical and Numeric Patterns Creation of own patterns.	Matchsticks Concrete objects Worksheets Number grids	Forms Classworks Tests Investigation Methods Teacher Group Assessment Observation Tools Memoranda	Problem posing Cooperative groups

		shapes and forms in 2and 3 dimensions in observational work, pattern making and design and in simple craft objects				
Wk 9 - 10	Cluster 1 (LO 3) 5.3.1 Recognises, visualises and names two-dimensional shapes and three-dimensional objects in natural and cultural forms and geometric settings including those previously dealt with and focusing on: • similarities and differences between cubes and rectangular prisms; • Similarities and differences between squares and rectangles. 5.3.2 Describes, sorts and compares two-dimensional shapes and three-dimensional objects from the environment and from drawings or pictures according to properties including: • number and/or shape of faces; • Number and/or length of sides. Cluster 2 (LO 3) 5.3.3 Investigates and compares two-dimensional shapes and three-dimensional objects studied in this grade according to properties listed above by:	Mathematics LO4 AS : 5 Estimates, records, measures, compares and orders 2D shapes and 3D objects using SI Units…. Technology LO 1 AS: Produces labeled 2D drawings enhanced with colour where appropriate.	Recognition and properties of 2-D shapes and 3-D objects Models Nets	Concrete 2D shapes and 3D objects Grid papers Rulers Measuring tapes	Forms Classwork Investigation Test Methods Peer assessment Group assessment Tool Memoranda	Group work

	• making models of geometric objects using polygons they have cut out; • cutting open models or geometric objects (e.g. boxes) to trace their nets; • Drawing shapes on grid paper.					
Wk 11	Cluster 3 (LO 4) 5.4.7 Uses appropriate measuring instruments (with understanding of their limitations) to appropriate levels of precision including • bathroom scales, kitchen scales and balances to measure mass; • measuring jugs to measure capacity; • rulers, metre sticks, tape measures and trundle wheels to measure length; • thermometers to measure temperature.	Mathematics LO1 AS 6 : Solves problems in context including contexts that may be used to build awareness of other Learning Areas, as well as Human Rights, Social, Economic, and environmental issues such as measurements in Natural Sciences and Technology contexts. Natural Science LO 2 Constructing science knowledge	Measurement: Mass, Capacity, Length and Temperature	bathroom scales, kitchen scales and balances rulers, metre sticks, tape measures and trundle wheels thermometers	Forms Classwork Assignment Investigations	Groupwork Verbal presentations
Wk 11	Cluster 1 (LO 5) 5.5.1 Poses simple questions about own school and family environment, and	Mathematics LO 1 AS 11: Uses a range of strategies to check	Data Gathering; Posing Questions	Data collection sheets	Forms Class works Assignment/ Investigation	Groupwork Verbal presentations

	identifies appropriate data sources in order to address human rights, social, political, cultural, environmental and economic issues in that environment. 5.5.2 Makes and uses simple data collection sheets that involve counting objects in order to collect data (Alone and/or as a member of a group or team) to answer questions posed by the teacher and the class. 5.5.3 Organises and records data using tallies and tables.	solutions and judge the reasonableness of solutions. <u>Natural Sciences</u> LO 1 AS 2: Conducts investigations and collects data, carries out instructions and procedures involving a small number of steps.	Making and uses simple data collection sheets Tallies and tables		<u>Methods</u> Teacher assessment Group assessment <u>Tools</u> Memoranda	
<u>Term 2</u> Wk 1-3	<u>Cluster 1 (LO1)</u> 5.1.1 Counts forwards and backwards in whole number intervals and fractions 5.1.3 Recognises and represents the following numbers in order to describe and compare them: • whole numbers to at least 6 – digit numbers; • common fractions to at least twelfths • decimal fractions of the form 0,5, 1,5 and 2,5 and so on, in the context of measurement; • 0 in terms of additive inverses; • 1 in terms of multiplicative inverses; • multiples of single-digit numbers to at least 100; Cluster 3 (LO1) 5.1.8 Estimates and calculates by selecting and using operations appropriate to solving problems that involve:	<u>Mathematics</u> 5.2.1 Investigates and extends numeric and geometric patterns looking for a relationship or rules, including patterns <u>Life Orientation:</u> AS:Compares the relationships between adults and children in a variety of situations in different cultural contexts.	Number recognition and place value up to six digit numbers. Common & Decimal Fractions Additive & Multiplicative	Counters Number grid Abacus Number lines Play Money Fraction wheel, strip & Models.	<u>Forms</u> Classworks Exams Assignment/Investigation <u>Methods</u> Teacher Group Assessment Observation <u>Tools</u> Memoranda Rubric	Groupwork Verbal presentations

	• .rounding off to the nearest 5, 10, 100 or 1 000; • addition and subtraction of whole numbers with at least 5 digits; • addition and subtraction of common fractions with the same denominator • . multiplication of at least whole 2-digit by 2-digit numbers; • division of at least whole 3-digit by 1-digit numbers; • finding fractions of whole numbers which result in whole numbers; • equivalent fractions 5.1.9 Perform mental calculations involving addition, subtraction and multiplication within the number range dealt with.		Inverses Factors of at least two digit numbers			

Wk 4 - 5	Cluster 2 (LO1) 5.1.6 Solves problems in context including contexts that may be used to build awareness of other Learning Areas, as well as human rights, social, economic and environmental issues such as: • financial (including buying and selling, profit and loss, and simple budgets) • measurements in Natural Sciences and Technology contexts.	Mathematics LO 4 AS 6: Solves problems involving selecting, calculating with and converting between appropriate SI units listed above, integrating appropriate context in Technology and Natural Science EMS 5.4.3 Identifies enterprises and events in own community where specific goods & services are being sold to satisfies consumer's needs & generate profit.	Problem Solving Profit and Loss Simple Budgets	Play Money Cashbook Newspapers (adverts)	Forms Classworks	Dramatisation
Wk 6 - 8	Cluster 2 (LO2) 5.2.4 Writes number sentences to describe a problem situation, including problems within contexts that may be used to build awareness of human rights, social, economic, cultural and environmental issues. Cluster 1 (LO2) 5.2.1 Investigates and extends numeric and geometric patterns looking for a relationship or rules, including patterns:	Mathematics LO1 Numbers, operations and relationships AS 1 Counts forwards and backwards in whole number intervals and fractions Technology LO1: Technological	Number sentences (mathematical modeling) Investigation of Numeric	Worksheets Magazines Charts	Forms Investigation/ Assignments Classworks Homeworks Method Group Teacher Self Tools Memoranda Rubric	Brainstorming Verbal Presentations

	• represented in physical or diagrammatic form; • not limited to sequences involving constant difference or ratio; • found in natural and cultural contexts; • . of the learner's own creation.	processes and skills	and Geometric Patterns.			
Wk 9	Cluster 3 (LO3) 5.3.4 Recognises, describes and performs rotations (turns), reflections (flips) and translations (slides) using geometric figures and solids Cluster 2 (LO3) 5.3.5 Makes two-dimensional shapes, three-dimensional objects and patterns from geometric shapes and describes these in terms of: • tessellations • line and rotational symmetry; • . movement including rotations, reflections and transilations.	Mathematics LO 2: Patterns, Functions and Algebra AS 2: Describes observed relationships or rules in own words	Recognition, description and performance of rotation, reflection and translation. Making 2-D shapes and 3-D objects Tessellations, line, and rotational symmetry.	Geometric Shapes Transparency Pair of Scissor Coki Pens Grid papers Pins Tracing Paper Mirrors	Forms Project Investigation Methods Teacher Group Assessment Observation Tools Memoranda Rubric Checklist	Investigations Cooperative group work
Wk 10	Cluster 1 (LO4) 5.4.1 Reads, tells and writes analogue, digital and 24-hour time to at least the nearest minute and second.	Mathematics 5.1.5: Recognises and uses equivalent forms of numbers.	Problem solving involving Time and Proportion	Analogue and digital Watches Worksheets	Forms Classwork Assignment Project	Problem posing Cooperative groups

	5.4.2 Solves problems involving calculation and conversion between appropriate time units including decades, centuries in millennia 5.4.3 Use time measuring instruments tp appropriate levels of precision including watches and stopwatches. 5.4.4 Describes and illustrates ways of representing time in different cultures throughout history. Cluster 2 (LO5) 5.4.5 Estimates, measures, records, compares and orders two-dimensional shapes and three dimensional objects using SI units with appropriate precision for: • mass using grams (g) and kilograms (kg); • capacity using millilitres (ml), and liters (l); • length using millimetres (mm), centimetres (cm), metres (m), and kilometers (km); • temperature using degrees Celcius scale. 5.4.6 Solves problems inviolving selecting, calculating with and converting between appropriate SI units listed above, intergrating appropriate contexts for Technology and Natural Sciences.	<u>Social Science</u> 5.2.1 : Uses dates & terms relating to the passing of time & arranges them in order [chronology & Time]			<u>Methods</u> Teacher Peer <u>Tools</u> Memoranda Rubric Checklist	
Wk 11	<u>Cluster 1 (LO5)</u> 5.5.3 Organises and records data using tallies and tables.	<u>Natural Sciences</u> 5.1.3 Evaluates data and communicates	Data organization and recording.	Graph papers	<u>Forms</u> classwork Assignment Checklist	Cooperative Learning

	5.5.4 Examines ungrouped numerical data to determine the most frequently occurring score (mode) of the data set in order to describe central tendencies.	findings: reports on the group's procedure and the results obtained.			Questionnaire <u>Methods</u> Teacher Peer <u>Tools</u> Memoranda Rubric Checklist	
Term 3 Wk1 - 3	<u>Cluster 1 (LO1)</u> 5.1.1 Counts forwards and backwards in whole number intervals and fractions 5.1.3 Recognises and represents the following numbers in order to describe and compare them: • . whole numbers to at least 6-digit numbers; • common fractions to at least twelfths • decimal fractions of the form 0,5; 1.5 and 2.5 and so on,in the context of measurement; • 0 in terms of additive inverses; • 1 in terms of multiplicative inverses; • multiples of single-digit numbers to at least 100; • factors of at least any 2-digit whole number 5.1.4 Recognises the place value of digits in whole numbers to a minimum of six digit numbers .	<u>Mathematics</u> 5.2.1 Investigates and extends Numeric and Geometric Patterns looking for a relationship or rules including patterns not limited to sequences involving constant difference or ratio. <u>Life Orientation:</u> AS: Compares the relationships between adults and children in a variety of situations in different cultural contents.	Number recognition and place value Recognition and representation of Common fractions to at least twelfths, Multiples of single digit numbers to at least 100 Ratio	Counters Number grid Abacus Number lines Multiplication grids Fraction pieces Fraction wall A4 papers (for paper folding Fraction wheel, strip & Models.	<u>Forms</u> Projects, Investigation Classworks Assignment <u>Method</u> Teacher Group Assessment Observation <u>Tools</u> Memoranda Rubric Memoranda Rubric Checklist	Investigation Problem posing Verbal presentations Games

	Cluster 2 [LO 1] 5.1.7 Solves problems that involve: • . comparing two or more quantities of the same kind (ratio) • comparing two quantities of different kinds eg. Learners/teacher.; Cluster 3(LO1) 5.1.8 • Estimates and calculates by selecting and using operations appropriate to solving problems that involve: • .rounding off to the nearest 5, 10, 100 or 1 000; • addition and subtraction of whole numbers with at least 5 digits; • addition and subtraction of common fractions with the same denominator and whole numbers with common fractions (mixed numbers); • multiplication of at least whole 3-digit by 2-digit numbers; • . division of at least whole 3-digit by 2-digit numbers; • . finding fractions of whole numbers which result in whole numbers; • equivalent fractions 5.1.9		Estimations using the four basic operations. Rounding off of Numbers			

	Perform mental calculation involving: • Addition and subtraction • Multiplication of whole numbers to at least 10X10					
Wk 4 - 5	Cluster 1 [LO2] 5.2.1 Investigates and extends numeric and geometric patterns looking for a relationship or rules, including patterns: 1.2. not limited to sequences involving constant difference or ratio;	Maths LO1 Numbers, operations and relationships As7: Solve problems that involve: comparing two or more quantities of the same kind (ratio); Arts & Culture 5.1.8 – 9: Composes & present short rhythmic patterns.	Investigation of Numeric & Geometric Patterns Formulation of Rules	Matchsticks Concrete objects Worksheets Number grids	Forms Classworks Tests Investigation Methods Teacher Group Assessment Observation Tools Memoranda	Problem solving Investigation Or Assignment
Wk 6	Cluster 2 LO2) 5.2.5 Solve or complete number sentences by inspection or trial and improvement, checking the solutions by substitution,(e.g. * / 4 = 12) 5.2.4 Write number sentences to describe a problem situation within a contexts that may be used to build awareness of human rights, social, economic, cultural and environmental issues 5.2.6 Determines through discussion and comparison, the equivalence of different descriptions of the same	Mathematics 5.1.11 Uses a range of strategies to check solutions and judge the reasonableness of solutions. Technology LO1: Technological processes and skills	Solve/ complete Number sentences Writing Number Sentences in different	Newspaper Worksheets Books	Forms Classworks Tests Investigation Methods Teacher Group Assessment Observation Tools Memoranda	Problem posing Verbal presentations Games

	relationship or rule presented: * verbally * in flow diagrams * by number sentences		contexts.			
Wk 7	Cluster 3(LO3) 5.3.7 Describes and sketches views of a simple three-dimensional object in different positions.		Describe and sketch objects in different positions.	Square grids Pencils Erasers Concrete objects	Forms Classworks Tests Investigation Methods Teacher Group Assessment Observation Tools Memoranda	Verbal presentations Games Cooperative pairs
Wk 8 - 9	Cluster 3 [LO4] 5.4.8 Investigates and approximates (alone and/or as a member of a group or team): • . perimeter using rulers or measuring tapes; • area of polygons (using square grids and tiling) in order to develop an understanding of square units;	Mathematics 5.3.2 Describe, sorts and compares 2-D shapes and 3-D objects from the environment and from drawings or pictures according to properties including number and or shape of faces. Number or a length of sides.	Investigate and approximate Perimeter and Area of Polygons.	Rulers Measuring Tapes Shapes Square Grids	Forms Classworks Tests Investigation Methods Teacher Group Assessment Observation Tools Memoranda Checklist	Investigation
Wk 10	Cluster 1 [LO5] 5.5.1 Poses simple questions about own school and family environment, and identifies appropriate data sources in order to address human rights, social, political, cultural, environmental and economic issues in that Environment. 5.5.2	Natural Sciences 5.1.2 Conducts investigations and collect data… caries out instructions and procedures involving a small number of steps.	Data gathering, analysis, representation and identification of data source.	Data collection sheets Graph papers Pencils Crayons	Forms Classworks Tests Investigation Methods Teacher Group Assessment Observation Tools Memoranda	Problem Posing Verbal presentations Games Cooperative pairs

	Makes and uses simple data collection sheets that involve counting objects in order to collect data (alone and/or as a member of a group or team) to answer questions posed by the teacher and the class. 5.5.3 Organises and records data using tallies and tables. 5.5.4 Examines ungrouped numerical data to determine the most frequently occurring score (mode) of the data set in order to describe central tendencies. <u>Cluster 2 [LO5]</u> 5.5.5 Draws a variety of graphs to display and interpret data (ungrouped) including: • pictographs with a many-one correspondence and appropriate keys (e.g. one picture = ten persons); • bar graphs.				Checklist	
Term 4 Wk 1-2	<u>Cluster 2 [LO 1]</u> 5.1.7 Solves problems that involve: • comparing two quantities of different kinds (e.g. learners/Teachers) 5.1.11 Uses a range of strategies to check solutions and judge the reasonableness of solutions. 5.1.8 Estimates and calculates by selecting	<u>Mathematics</u> 5.4.5 Estimates, measures, records, compares and orders two-dimensional shapes and three-dimensional objects using S.I. units with appropriate precision for 5.1. mass using grams (g) and kilograms (kg) 5.2.capacity using	Problem solving Comparing quantities	Multiplication grids Number grids Fraction Pieces Fraction walls Number lines Rulers Scales	<u>Forms</u> Classworks Tests Investigation <u>Methods</u> Teacher Group Assessment Observation <u>Tools</u> Memoranda	Verbal presentations Games Cooperative pairs

	and using operations appropriate to solving problems that involve: • .rounding off to the nearest 5, 10, 100 or 1 000; • addition and subtraction of whole numbers with at least 5 digits; • multiplication of at least whole 3-digit by 2-digit numbers; • division of at least whole 3-digit by 2-digit numbers; • equivalent fractions 5.1.10 Uses a range of techniques to perform written and mental calculations with whole numbers including: • .adding and subtracting in columns; • . building up and breaking down numbers • . rounding off and compensating; • . doubling and halving; • . using a calculator. 5.1.11 Uses a range of strategies to check solutions and judge the reasonableness of solutions. <u>Cluster 4 [LO1]</u> 5.1.12 Recognises, describes and uses: • . the reciprocal relationship between multiplication and division (e.g. if 5 x 3 = 15 then 15 ÷ 3 = 5 and 15 ÷ 5 = 3);	millilitres (ml) and litres (l) 5.3. length using millimetres (mm), centimetres (cm); metres (m) and kilometres (km) 5.4. temperature using degree Celsius scale.	Rounding off of numbers to the nearest 10, 100 or 1000.			

			Reciprocals in multiplication and division.			
Wk 3	Cluster 2 [LO2] 5.2.4 Writes number sentences to describe a problem situation, including problems within contexts that may be used to build awareness of human rights, social, economic, cultural and environmental (e.g.1 ÷ 8 =1/8); Cluster 4 [LO1] 5.1.12 • the commutative, associative and distributive properties with whole numbers (the expectation is that learners should be able to use the properties and not necessarily know the names).	Mathematics 5.1.7 Solve problems involve – comparing two or more quantities of the same kind(ratio) - Comparing two quantities of different kinds (e.g. Learners/Teacher) Technology LO1: Technological processes and skills	Number sentences (mathematical modeling)	Newspapers Magazines	Forms Classworks Tests Investigation Methods Teacher Group Assessment Observation Tools Memoranda	Verbal presentations Games Cooperative pairs

Wk 4 – 5	Cluster 1 (LO3) 5.3.1 Recognises visualizes and names two-dimensional shapes and three-dimensional objects unnatural and cultural forms and geometric settings including those previously dealt with and focusing on Similarities and differences between cubes and rectangular prisms Similarities and differences between squares and rectangles 5.3.6 Recognises and describes natural and cultural two-dimensional shapes, three-dimensional objects and patterns in terms of geometric properties.	Mathematics 5.4.8 Investigates and approximates(alone and/ or as a member of a group or team): • Perimeter using rulers or measuring tapes Area of polygons(using square grids on tiling) in order to develop an understanding of square	Recognises visualizes and names two-dimensional shapes and three-dimensional objects	Geometric shapes Concrete objects Grid Papers	Forms Classworks Tests Investigation Methods Teacher Group Assessment Observation Tools Memoranda	Verbal presentations Games Cooperative pairs
Wk 6	Cluster 3 [LO3] 5.3.8 Locates position on a coded (labeled) grid including maps and traces a path between positions following verbal and written instructions.	Social Science LO 1 : Geographical Enquiry:- AS: uses an Index to find places on global atlas maps (Works with Sources)	Location of Positions in a coded grid.	Grid paper & Graph Papers Map	Forms Investigation Or Assignments Teacher Group Assessment Observation Tools Memoranda	Verbal presentations Games Cooperative pairs
Wk 7	Cluster 3 [LO4] 5.4.8 Investigates and approximates (alone and/or as a member of a group or team): • volume/capacity of objects (by packing or filling them) in order to develop an understanding of cubic units. 5.4.9	Mathematics 5.1.5 Recognises and uses equivalent forms of the numbers listed above, including: 5.1. common fractions with denominators that are multiples of each other;	Investigation of the area, volumes /capacity and angles	Geometric shapes Capacity measuring kit.	Forms Classworks Tests Investigation Methods Teacher Group Assessment Observation Tools Memoranda	Verbal presentations Games Cooperative pairs

	Recognises and describes right angles in two-dimensional shapes, three-dimensional objects and the environment.	5.2. decimal fractions of the form 0,5, 1,5 and 2,5 and so on, in the context of measurement.			Rubric	
Wk 8	Cluster 2 [LO5] 5.5.6 Critically reads and interprets data presented in a variety of ways (including own representations in the media – both words and graphs) to draw conclusions and make predictions sensitive to the role of: • context (e.g. rural or urban); • categories within the data (e.g. gender and race); • other human rights issues.	Natural Sciences 5.1.3 Evaluates data and communicates findings: reports on the group's procedure and the results obtained.	Reading, presentation and interpretation of data. Draw conclusions of findings.	Newspaper Clips Graphs. Grid paper.	Forms Classworks Tests Examination Methods Teacher Group Assessment Tools Memoranda Rubric Checklist	Verbal presentations Cooperative pairs
Wk 9 - 10	Cluster 3 (LO5) 5.5.7 Compares, classifies and orders events from daily life on a scale from 'certain that they will happen' to 'certain that they will not happen'. 5.5.8 Lists possible outcomes for simple experiments (including tossing a coin, rolling a die, and spinning a spinner). 5.5.9 Counts the frequency of actual outcomes for a series of trials.	Mathematics 5.1.7 Solve problems that involve comparing two or more quantities of the same kind (ratio).	Probability : listing possible Outcomes	Coins Dice Cards Spinners Worksheet	Forms Classworks Tests Investigation Methods Teacher Group Assessment Tools Memoranda Checklist	Games Cooperative pairs

GRADE 6 WORK SCHEDULE

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TERM	LO and ASs	INTEGRATION	CONTENT IN CONTEXT	RESOURCES	ASSESSMENT FORMS, METHODS and TOOLS	TEACHING and LEARNING STRATEGIES
1 Week 1 - 3	Cluster 1(LO 1) : 6.1.1-Counts forwards and backwards in decimals 6.1.2-Describe and illustrate written number systems different to own e.g. Roman Number Systems, Egyptian, etc 6.1.4-Recognise the place value of digits in whole numbers to 6-digits 6.1.3:Recognise and represent numbers in order to compare: • *to a minimum of 6-digit whole numbers.* • *common fractions including specifically tenths,* • *0 in terms of its additive property.* • *1 in terms of its multiplicative property.* • *multiples and factors of 2-digit whole numbers*	MATHEMATICS 6.2.1- Investigate and extend numeric and geometric patterns looking for a general rule or relationships: • represented in physical or diagrammatic form. • of the learner's own creation. 6.2.2- Describe observed relationships or rules in own words. LO 4 : Measurement 6.4.1: Reads, tells and writes analogue, digital and 24-hour time to at least the nearest minute and second.	Counting in decimals Description and illustration of number systems Recognition of place values to at least 6-digit numbers Common fractions including specifically tenths, 0 in terms of its additive property. 1in terms of its multiplicative property. Multiples and factors of 2-digit whole *numbers*	Counters, number grid, abacus ,number line, wall clock	Forms Home works, class works ,tests Investigation/assignment Methods Teacher, peers, and groups Tools Memorandum, Rubric	Discussions in groups Questions and Answers

Week 4-5	Cluster 2 (LO 1): 6.1.8-Estimates and calculates by selecting and using operations appropriate to solving problems that involve : • rounding off to the nearest 5, 10, 100, or 1000. • addition and subtraction of whole numbers addition and subtraction of whole numbers with common fractions (mixed numbers); • multiplication of at least whole 3-digit by 2-digit numbers; • division of at least whole 3-digit by 2-digit numbers; • finding fractions of whole numbers. • equivalent fractions; • multiple operations on whole numbers with or without brackets. 6.1.9-Mental calculations using a range of techniques for addition, subtraction and multiplication within the number range dealt with. 6.1.10- Use a range of techniques to perform written mental calculations with whole numbers including : • adding and subtracting in columns; • building up and breaking down numbers.	MATHEMATICS LO 2 : Patterns, functions and algebra 6.2.3: Determines output values for given input values using : • verbal descriptions • flow diagrams LO 4 : Measurement 6.4.1: Reads, tells and writes analogue, digital and 24-hour time to at least the nearest minute and second.	Estimation, rounding off, four basic operations using whole numbers and fractions Mental calculations using range of techniques for addition, subtraction and multiplication within the number range dealt with Perform written mental calculations with whole numbers including : Adding and	Counters, number grid, abacus ,number line, wall clock	Forms Home works, class works ,tests Methods Teacher, self peers, and groups, Tools Memorandum	Group discussions, questions and answers

	• rounding off and compensating; • using a calculator		subtracting in columns; Building up and breaking down numbers. Rounding off and compensating ; Using a calculator			
Week 6-7	Cluster 1(L0 2) : 6.2.1- Investigate and extend numeric and geometric patterns looking for a general rule or relationships: • *represented in physical or diagrammatic form.* • *of the learner's own creation.* 6.2.2- Describe observed relationships or rules in own words. 6.2.3- Determines the output values for given input values, or input values for given output values using : • *verbal description;* • *flow diagrams; tables.*	MATHEMATICS LO :1 6.1.1: Counts forwards and backwards in decimals ARTS AND CULTURE LO 4 : 6.4.2 : Dramatizes a cultural ritual (religious ceremony or social celebration), showing the use of elements of drama (e.g. patterns ,repetition, sequence.	Investigation of patterns and rules : *Represented in physical or diagrammatic form.* *Of the learner's own creation* Description of relationships and rules in own words Determines input and output values	Beads, straws, match sticks, papers, scissors ,number grids	Forms Home works, class works ,tests investigation Methods Teacher, peers, and groups Tools Memorandum, Rubric Observation sheet	Problem posing, Investigation and Group discussion
Week 8	Cluster 2(LO 2) : 6.2.4- Write number sentences to describe a problem situation, within a context.	MATHEMATICS LO 1: Numbers, operations and relationships 6.1.6: Solves problems in context including	Number sentences	Text book Newspaper Magazines	Forms Home works, class works tests	Group discussion

		contexts that may be used to build awareness of other Learning Areas as well as human rights, social, economic and environmental issues.			<u>Methods</u> Teacher, peers, and groups assessment <u>Tools</u> Memorandum, Rubric	
Week 9-10	<u>Cluster 1(LO 3)</u> : 6.3.1 - Recognise, visualise and name 2-D shapes and 3-D objects focusing on: • *Similarities and differences between tetrahedrons and other pyramids.* *Similarities and differences between rectangles and parallelograms* 6.3.2- Describes and classifies 2-D shapes and 3-D objects in terms of properties: • faces, vertices and edges; • lengths of sides; angle size of corners 6.3.3-Investigate and compare 2-D shapes and 3-D objects according to properties listed above by: • make 3-D • models using; ○ drinking straws to make a skeleton ○ nets provided by the teacher • drawing shapes on grid paper • using a pair of compass.	<u>MATHEMATICS</u> <u>LO 4</u>: 6.4.8: Investigates and approximates (alone and or as a member of a group or team): • perimeter using rulers or measuring tapes • area of polygons in order to develop rules for calculating the area of rectangles volume /capacity of objects in order to develop rules for calculating volume of rectangular prisms. <u>Technology</u> LO1 AS: Draws appropriate sketches (e.g. labeled 2 – D drawings of ideas, enhanced drawing of final solutions and drawing showing measurements) to communicate different information appropriately and effectively.	Recognition and visualization of 2-Dimensional shapes and 3-Dimensional objects Description and classification of 2-D shapes and 3-D objects in terms of properties: *Faces, vertices and edges;* *Lengths of sides;* *Angle size of corners* Investigation and comparison of	Boxes, A4 and A3 papers, rulers and trundle wheels, scissors, pairs of compasses, drinking straws Grid paper 2-D shapes and 3-D objects	<u>Forms</u> Home works, class works tests <u>Methods</u> Teacher, self peers, and groups assessment <u>Tools</u> Memorandum, Rubric	Co-operative group work Brainstorming Questions and answers.

			2-D shapes and 3-D objects. Making models of 3 – D objects.			
Week 11	Cluster 1(LO 5) : 6.5.2-Uses simple data collection sheets (requiring tallies) and simple questionnaires (with yes/no type responses) in order to collect data (alone and/or as a member of a group or team) to answer questions posed by the teacher, class and self. 6.5.4-Organises and records data using tallies and tables.	Natural Sciences 6.1.2 Conducts investigations and collects data: conducts simple tests or surveys and records observations and responses.	Data gathering: Organising and recording data	Collection sheets questionnaires	Forms Home works, class works tests assignment Methods Teacher, Self, peers, group assessment Tools Memorandum, Rubric Questionnaires Checklist	Cooperative Research Questions and answers.
TERM 2 Week 1-3	CLUSTER 1(LO 1) LO 1 : NUMBER,OPERATIONS AND RELATIONSHIPS 6.1.1-Counts forwards and backwards in decimals 6.1.4-Recognise the place value of digits in : • whole numbers to 7-digit numbers • decimal fractions to at least 1 decimal place 6.1.5-Recognise and use equivalent forms of the numbers listed above,	MATHEMATICS LO 4 : Measurement 6.4.1: Reads, tells and writes analogue, digital and 24-hour time to at least the nearest minute and second.	Number recognition of place values. Common fractions with1-digit denominators.	Counters, number grid, abacus , Flip chart with number lines	Forms Home work, class work Test Examination Assignment/ Investigations Methods Teacher, self peers, and groups assessment Tools	Cooperative group work, Verbal presentation

	including: • *common fractions with1-digit denominators.* • *decimal fractions to at least 1 decimal places.* 6.1.8-Estimate and calculate by selecting and using operations appropriate to solving problems that involve : • rounding off to the nearest 5, 10, 100, or 1000. • addition and subtraction of whole numbers • addition and subtraction of common fractions with denominators which are multiples of each other and whole numbers with common fractions (mixed numbers); • multiplication of at least whole 4-digit by 1-digit numbers; • division of at least whole 4-digit by 3-digit numbers; • addition and subtraction of positive decimals with at least 1 decimal place; multiple operations on whole numbers with or without brackets		Decimal fractions to at least 1 decimal place. Estimation and calculation using operations to solve problems.		Memorandum, Rubric	
Week 4	<u>CLUSTER 2(LO 1)</u> 6.1.9-Mental calculations involving: • addition and subtraction.	<u>MATHEMATICS</u> LO 2 : Patterns, functions and algebra	Mental calculation, rounding off,	Counters, number grid, abacus	<u>Forms</u> Home works, class works	Counting and discussions in groups

	• multiplication of whole numbers to at least 12 x 12. 6.1.10- Use a range of techniques to perform written and mental calculations with whole numbers including : • multiplying in columns; • building up and breaking down numbers. • rounding off and compensating; • using a calculator.	6.2.3: Determines output values for given input values using : • verbal descriptions • flow diagrams LO 4 : Measurement 6.4.1: Reads, tells and writes analogue, digital and 24-hour time to at least the nearest minute and second.	four basic operations using whole numbers Multiplying in columns; Building up and breaking down numbers. Rounding off and compensating ; Using a calculator.	,number line	,tests Methods Teacher, self ,peers, and groups, Tools Memorandum	
Week 5	CLUSTER3(LO 1) 6.1.6-Solve problems in context including contexts that may be used to build awareness of other Learning Area, as well as human rights, social and environmental issues such as: • financial (including buying and selling, profit and loss, simple budgets, reading and interpreting accounts and discounts) Measurements in Natural Science and Technology contexts. 6.1.11-Use a range of strategies to check solutions and judge the reasonableness of solutions	MATHEMATICS LO 2: Patterns, functions and algebra 6.2.4: Writes number sentences to describe a problem situation including problems within contexts that may be used to build awareness of human rights, social, economic, cultural and environmental issues. EMS LO 4 : Identifies a variety of possible business opportunities in the community	Problem solving in different contexts, e.g. Financial (including buying and selling, profit and loss, simple budgets, reading and interpreting accounts and discounts) Measurements in Natural Science and Technology contexts. Verification of solutions	Coins, play money cash book statements	Forms Home work, class work tests Oral presentation Methods Teacher, self ,peers, and groups, Tools Memorandum Observation sheet	Problem – posing and discussions role playing group work

Week 6-7	CLUSTER 1(LO2) LO 2: PATTERNS, FUNCTIONS AND ALGEBRA 6.2.1- Investigate and extend numeric and geometric patterns looking for a general rule or relationships: • represented in physical or diagrammatic form. • not limited to sequences involving constant difference or ratio. 6.2.2- Describe observed relationships or rules in own words.	MATHEMATICS LO 3: Space and shape 6.3.1 - Recognise, visualise and name 2-D shapes and 3-D objects focusing on: • Similarities and differences between tetrahedrons and other pyramids. • Similarities and differences between rectangles and parallelograms6. 3.1 - Recognise, visualise and name 2-D shapes and 3-D objects focusing on: • Similarities and differences between tetrahedrons and other pyramids. • Similarities and differences between rectangles and parallelograms	Investigation of patterns and rules. Description and finding of relationships or rules.	2-dimensional shapes and 3-dimensional objects	Forms Home works, class works tests, investigation and project Methods Teacher, self ,peers, and groups, Tools Memorandum Rubric Checklist	Problem posing, investigations , co operative group work
Week 8	CLUSTER 2(LO 2) 6.2.4- Write number sentences to describe a problem situation, within a context.	6.1.6: Solves problems in context including contexts that may be used to build awareness of other Learning Areas as well as human rights, social, economic and environmental issues. Social science Geographical enquiry	Number sentences (Mathematical modeling)	Newspaper clips Magazines Text book Worksheets	Forms Home works, class works tests Methods Teacher, peers, and groups assessment Tools Memorandum,	Group discussion

		AS : uses information to propose solutions to problems.			Rubric	
Week 9	CLUSTER2(LO 3) LO 3: SPACE AND SHAPE 6.3.4-Uses the vocabulary and properties of rotations, reflection and translation to describe relationships between distinct two-dimensional shapes and three-dimensional objects within patterns (including transformations and symmetry) 6.3.5-Draws enlargements and reductions of 2-dimensional shapes (at least quadrilaterals and triangles) using grid paper to compare their size and shape.	MATHEMATICS LO 4: Measurement 6.4.1 Reads, tells and writes analogue, digital and 24-hour time to at least the nearest minute and second 6.4.11 Recognises and describe angles in two-dimensional shapes, three dimensional objects and the environment in terms of : • right angles • angles greater than right angles	Symmetry (Rotations, Reflection and Translation) Draw enlargements and reductions of 2-D shapes.	Wall clock, mathematical sets, grid papers, mirror Pins, transparency, pair of scissors	Forms Home works, class works ,tests, investigation Methods Teacher, peers, and groups assessment Tools Memorandum, Rubric	Co operative group work
Week 10	CLUSTER 1(LO 4) LO 4 : MEASUREMENT 6.4.1-Reads ,tells and writes analogue , digital and 24-hour time to at least the nearest minute and second 6.4.2-Solve problems involving calculations and conversion between appropriate time units including time zones and differences. 6.4.3-Describes and illustrates ways of representing time in different cultures throughout	MATHEMATICS LO 1: Numbers, operations and relationships 6.1.6: Solves problems in context including contexts that may be used to build awareness of other Learning Areas as well as human rights, social, economic and environmental issues. • Measurements in Natural Sciences	Problem solving including time	Analogue watch, digital watch Worksheets Pictures on flip chart paper.	Forms Home works, class works tests Methods Teacher, peers, and groups assessment Tools Memorandum, Rubric	Problem posing Storytelling

	history.	and Technology contexts.				
Week 11	<u>CLUSTER 2(LO 4)</u> 6.4.4-Estimates, measures, records, compares and orders two-dimensional shapes and three-dimensional objects using SI- units with appropriate precision for : • mass using grams (g) and kilograms (kg) • capacity using millilitres (ml) and litres (l) length using millimetre (mm) , centimetres (cm) , metres (m) and • kilometres (km) • temperature using degree Celsius scale 6.4.5-Solve problems involving selecting, calculating width and converting between appropriate SI-units listed above, integrating appropriate Technology and Natural Sciences context. 6.4.6-Using appropriate measuring instruments (with understanding of their limitations) to appropriate levels of precision including : • bathroom scales, kitchen scales and balances to measure mass • measuring jugs to measure capacity • rulers, metre sticks, tape measures and trundle wheels to measure length	<u>MATHEMATICS</u> LO 3:Space and shape 6.3.6 Recognises and describes natural and cultural two-dimensional shapes and three-dimensional objects and patterns in terms of geometric properties 6.3.7 Draws and interprets sketches of simple three- dimensional objects from different positions <u>Technology</u> LO 1: Technological knowledge, processes and skills 6.1. Communicates products labeled 2-dimensional shapes, drawings enhanced with colour where appropriate	Estimation, measurement and comparison of mass, Capacity and length Problem solving, calculating and conversion of SI units. Using appropriate measuring instruments with precision	2-dimensional shapes and 3-dimensional objects, rulers, Celsius scale, meter stick, thermometer, tape measure trundle wheels Measuring kit	<u>Forms</u> Home works, class works ,tests, investigation <u>Methods</u> Teacher, peers, and groups assessment <u>Tools</u> Memorandum, Rubric	Co operative group work, project, investigation

	• thermometers to measure temperature.					
TERM 3 Week 1 – 2	<u>CLUSTER1(LO 1)</u> <u>LO 1</u> : NUMBER,OPERATIONS AND RELATIONSHIPS 6.1.1-Count forwards and backwards in decimals 6.1.4-Recognises the place value of digits in : • whole numbers to 8-digit numbers • decimal fractions to at least 2 decimal place 6.1.5-Recognise and use equivalent forms of the numbers listed above, including: • common fractions with 1-digit & 2digit denominators. • decimal fractions to at least 2 decimal places. 6.1.8-Estimate and calculate by selecting and using operations appropriate to solving problems that involve : addition and subtraction of common fractions with denominators which are multiples of each other and whole numbers with common fractions (mixed numbers); • multiplication of at least whole 4-digit by 2-digit numbers; • division of at least whole 4-digit by 2-digit	<u>MATHEMATICS</u> <u>LO 4</u> : Measurement 6.4.1: Reads, tells and writes analogue, digital and 24-hour time to at least the nearest minute and second.	Counting in decimals Whole numbers to 8-digit numbers Decimal fractions to at least 2 decimal places *Common fractions with 1-digit & 2digit denominators.* *Decimal fractions to at least 2 decimal places.* Estimation and calculation using operations to solve problems.	Counters, number grid, abacus	<u>Forms</u> Home works, class works tests <u>Methods</u> Teacher, self peers, and groups assessment <u>Tools</u> Memorandum, Rubric	Group discussions Brainstorming

	numbers; • equivalent fractions; • addition and subtraction of positive decimals with at least 2 decimal places; • multiple operations on whole numbers with or without brackets.					
Week 3	CLUSTER 2(LO1) 6.1.6-Solve problems in context including contexts that may be used to build awareness of other Learning Area, as well as human rights, social and environmental issues such as: • *financial(including buying and selling, profit and loss, simple budgets, reading and interpreting accounts and discount).* • *Measurements in Natural Science and Technology contexts.* 6.1.7-Solves problems that involve : • *comparing two or more quantities of the same kind (ratio).* • *Comparing two quantities of different kind(rates e.g. wages/day)*	MATHEMATICS LO 2: Patterns, functions and algebra 6.2.4: Writes number sentences to describe a problem situation including problems within contexts that may be used to build awareness of human rights, social, economic, cultural and environmental issues. EMS LO 4 : Identifies a variety of possible business opportunities in the community	Problem solving in different contexts, e.g. *financial(including buying and selling, profit and loss, simple budgets, reading and interpreting accounts and discount). Measurements in Natural Science and Technology contexts.* *Comparing two or more quantities of the same kind (ratio).* *Comparing two quantities of different*	Coins, play money, cash book account statements	Forms Home works, class works tests Oral presentation Methods Teacher, self ,peers, and groups, Tools Memorandum Observation sheet Rubric	Problem – posing and discussions role playing group work

			kind(rates e.g. wages/day)			
Week 4	CLUSTER 3(LO 1) 6.1.9-Performs mental calculations involving: • *addition and subtraction.* • *multiplication of whole numbers to at least 12 x 12.* 6.1.10- Use a range of techniques to perform written and mental calculations with whole numbers including : • *adding, subtracting and multiplying in columns;* • *long division;* • *building up and breaking down numbers.* • *rounding off and compensating;* *using a calculator.* 6.1.12-Recognise, describe and use: • *the commutative, associative and distributive properties with whole numbers (the expectation is that learners must be able to use the properties and not necessarily know the names).*	MATHEMATICS LO 2 : Patterns, functions and algebra 6.2.3: Determines output values for given input values using : • verbal descriptions • flow diagrams LO 4 : Measurement 6.4.1: Reads, tells and writes analogue, digital and 24-hour time to at least the nearest minute and second.	Mental calculations using four basic operations in whole numbers Rounding off of numbers. Recognition, Description and use of: *the commutative, associative and distributive properties with whole numbers.*	Counters, number grid, abacus number line, calculator	Forms Home works, class works tests Methods Teacher, self ,peers, and groups, Tools Memorandum	Group discussions. Brainstormin g Questions and answers.
Week 5	CLUSTER 1(LO 2) LO 2: PATTERNS, FUNCTIONS AND	MATHEMATICS LO 3: Space and shape	Investigation of patterns	2-dimensional shapes and 3-	Forms Home works, class	Problem posing,

	ALGEBRA 6.2.1- Investigate and extend numeric and geometric patterns looking for a general rule or relationships: • *found in natural and cultural contexts;* • *of the learner's own creation*	6.3.1 - Recognise, visualise and name 2-D shapes and 3-D objects focusing on: *Similarities and differences between* • *Tetrahedrons and other pyramids.* *Similarities and differences between rectangles and parallelograms* 6.3.1 - Recognise, visualise and name 2-D shapes and 3-D objects focusing on: • *Similarities and differences between tetrahedrons and other pyramids.* *Similarities and differences between rectangles and parallelograms*	and formulation of rules.	dimensional objects Matchsticks Glue Cardboard Drinking straws	works tests, investigation project <u>Methods</u> Teacher, self peers, and groups, <u>Tools</u> Memorandum Rubric	investigations , co operative group work
Week 6	<u>CLUSTER 2(LO 2)</u> 6.2.4-. Write number sentences to describe a problem situation, within a context. 6.2.5- Solve or complete number sentences by inspection or by trial-and-improvement, checking the solutions by substitution.	<u>MATHEMATICS</u> <u>LO 1</u>: 6.1.6: Solves problems in context including contexts that may be used to build awareness of other Learning Areas as well as human rights, social, economic and environmental issues.	Number sentences (Mathematical modeling)	Text books Newspapers (case study)	<u>Forms</u> Home works, class works tests <u>Methods</u> Teacher, peers, and groups assessment <u>Tools</u> Memorandum, Rubric	Group discussion Problem posing
Week 7	<u>CLUSTER 3(LO 2)</u> 6.2.6- Determine, through discussion and comparison, the	6.1.5-Recognise and use equivalent forms of the numbers listed	Representing information and rules in a	Number cards Worksheets Flow charts	<u>Forms</u> Home works, class works	Cooperative group work

	equivalence of different descriptions of the same relationship or rule presented: • *verbally.* • *in flow diagrams.* • *by number sentences*	above, including: • *common fractions with 1-digit & 2-digit denominators.* • *decimal fractions to at least 2 decimal places.*	variety of ways.	diagrams	tests Methods Teacher, peers, and groups assessment Tools Memorandum, Rubric	
Week 8	CLUSTER 3(LO3) LO 3: SPACE AND SHAPE 6.3.7-Draws and interprets sketches of 3-dimensional objects from different positions (perspectives)	6.4.6-Using appropriate measuring instruments (with understanding of their limitations) to appropriate levels of precision including : • rulers, metre sticks, tape measures and trundle wheels to measure length	Drawing of sketches of 3– D objects from different positions.	Graph & grid papers, Maths set of instruments	Forms Home works, class works ,tests assignment Methods Teacher, peers, and groups assessment Tools Memorandum, Rubric	Individual and pair
Week 9- 10	CLUSTER 3(LO 4) LO 4 : MEASUREMENT 6.4.5-Solve problems involving selecting, calculating width and converting between appropriate SI-units (measurements) 6.4.7-Describes and illustrates ways of measuring in different cultures throughout history, including informal measuring systems. 6.4.8-Investigates and approximates (alone and/or as a member of a team)	MATHEMATICS LO 3: 6.3.6-Recognises and describes natural and cultural 2-dimensional shapes, 3-dimensional objects and patterns in terms of geometric properties.	Problem solving involving: calculating width and converting units. Measuring in different cultures	Mathematical instrument set 2-D shapes and 3-D objects Measuring Tape Square grids	Forms Home works, class works project assignment Methods Teacher, peers, and groups assessment Tools Memorandum, Rubric	Problem posing Cooperative learning Brainstormin g

	perimeter using rulers or • measuring tapes • area of polygons (using square grids) in order to develop rules for calculating the area of squares and rectangles		Investigating area and perimeter in polygons.			
Week 11	CLUSTER 1(LO 5) LO 5: DATA HANDLING 6.5.1-Poses simple questions about own school and family environment, and identifies appropriate data sources in order to address human rights , social, political, cultural , environmental and economic issues in that environment. 6.5.2-Uses simple data collection sheets (requiring tallies) and simple questionnaires (with yes/no type responses) in order to collect data (alone and/or as a member of a group or team) to answer questions posed by the teacher, class and self. 6.5.3-Distinguishes between samples and populations. 6.5.4-Organises and records data using tallies and tables. 6.5..5-Examines ungrouped numerical data to determine the most frequently occurring score (mode) and the mid-point (median) of the data set in order to describe central tendencies. 6.5.6-Draws a variety of graphs by hand / technology to display and interprets data (grouped and ungrouped) including :	MATHEMATICS LO 3: Space and shape 6.3.2 Describes and classifies two – dimensional shapes and three-dimensional objects in terms of properties including : • faces, vertices and edges • length of sides • Angle size of corners.	Data gathering, representation, and analysis. Differences between samples and populations. Data organisation and recording.	Collection sheets, Questionnaires. Mathematical instrument set.	Forms Home works, class works tests assignment investigation project Methods Teacher, self, peers, and groups assessment Tools Memorandum, Rubric questionnaires	Cooperative group work

	• pictographs with many-one correspondence and appropriate keys bar graphs and double bar graphs.		Drawing of pictographs, bar and double bar graphs.			
TERM 4 Week 1	<u>CLUSTER 1(LO 1)</u> <u>LO 1</u> : NUMBER,OPERATIONS AND RELATIONSHIPS 6.1.1-Count forwards and backwards in decimals 6.1.4-Recognises the place value of digits in : • whole numbers to 9-digit numbers • decimal fractions to at least 2 decimal places 6.1.5-Recognise and use equivalent forms of the numbers listed above, including: • *common fractions with 1-digit or 2-digit denominators.* • *decimal fractions to at least 2 decimal places.* • *percentages.* 6.1.8-Estimate and calculate by selecting and using operations appropriate to solving problems that involve: • *addition and subtraction of common fractions with denominators which are multiples of each other*	<u>MATHEMATICS</u> <u>LO 4</u> : Measurement 6.4.1: Reads, tells and writes analogue, digital and 24-hour time to at least the nearest minute and second.	Counting in decimals. Whole numbers to 9-digit numbers Decimal fractions to at least 2 decimal places *Common fractions with 1-digit or 2-digit denominators.* *Decimal fractions to at least 2 decimal places.* *Percentages.*	Counters, number grid, abacus number line, Fraction walls, wheels and strips.	<u>Forms</u> Home works, class works tests examination assignment <u>Methods</u> Teacher, self peers, and groups assessment <u>Tools</u> Memorandum, Rubric	Counting and discussions in groups

	and whole numbers with common fractions (mixed numbers); multiplication of at least whole 4-digit by 3-digit numbers; • *division of at least whole 4-digit by 1-digit number;* • *finding fractions of whole numbers.* • *addition and subtraction of positive decimals with at least 2 decimal places;* • *finding percentages of whole numbers;* • *multiple operations on whole numbers with or without brackets.*		Estimation and calculation using operation to solve problems. Finding percentages of whole numbers.			
Week 2 - 3	<u>CLUSTER 2(LO 1)</u> 6.1.9-Performs mental calculations involving: • *addition and subtraction.* • *multiplication of whole numbers to at least 12 x 12.* 6.1.10- Use a range of techniques to perform written and mental calculations with whole numbers including : • *adding, subtracting and multiplying in columns; long division;* • *building up and breaking down numbers.* • *rounding off and compensating;* *using a calculator.* 6.1.11-Use a range of strategies to check solutions and judge the reasonableness of solutions.	<u>MATHEMATICS</u> LO 2 : Patterns, functions and algebra 6.2.3: Determines output values for given input values using : • verbal descriptions • flow diagrams <u>LO 4</u> : Measurement 6.4.1: Reads, tells and writes analogue, digital and 24-hour time to at least the nearest minute and second.	Mental calculations using basic operations. Using different	Counters, number grid, abacus calculator	<u>Forms</u> Home works, class works tests <u>Methods</u> Teacher, self, peer and group assessment <u>Tools</u> Memorandum Rubric	Counting and discussions in groups

	6.1.12-Recognise, describe and use: • *divisibility rules for 2, 5, 10, 100 and 1000;*		strategies to check solutions *Divisibility rules for 2, 5, 10, 100 and 1000;*			
Week 4	<u>CLUSTER 1(LO 2)</u> <u>LO 2:</u> PATTERNS, FUNCTIONS AND ALGEBRA 6.2.1- Investigate and extend numeric and geometric patterns looking for a general rule or relationships • *of the learner's own creation.* • *represented in tables.* 6.2.2- Describe observed relationships or rules in own words. 6.2.4- Write number sentences to describe a problem situation, within a context.	<u>MATHEMATICS</u> LO 3: Space and shape 6.3.6 Recognises and describes natural and cultural two-dimensional shapes, three-dimensional objects and patterns in terms of geometric properties LO 1: Numbers ,operations and relationships 6.1.7 Solve problems that involve: • comparing two or more quantities of the same kind • comparing two quantities of different kinds (rate e.g. wages/day).	Patterns, rules and number sentences	Two-dimensional shape and three – dimensional objects	<u>Forms</u> Home works, class works ,tests <u>Methods</u> Teacher, self, peer and group assessment <u>Tools</u> Memorandum rubric	Problem posing investigations

Week 5	CLUSTER 3(LO 3) LO 3: SPACE AND SHAPE 6.3.6-Recognises and describes natural and cultural 2-dimensional shapes, 3-dimensional objects and patterns in terms of geometric properties	6.2.1- Investigate and extend numeric and geometric patterns looking for a general rule or relationships : • *of the learner's own creation.* • *represented in tables.*	Recognition and description of 2-D shapes 3-D objects.	Two-dimensional shape and three – dimensional objects	Forms Home works, class works tests Methods Teacher, self, peer and group assessment Tools Memorandum Rubric	Problem posing Investigations
Week 6	CLUSTER 3(LO 3) 6.3.8-Locates positions on a coded grid , describes how to move between positions on the grid and recognises maps as grids		Location of positions on a grid.	Coded grid, graph paper and mathematical instruments set.	Forms Home works, class works ,tests Methods Teacher, self, peer and group assessment Tools Memorandum rubric	Investigations , working in pairs and as individual
Week 7 - 8	CLUSTER 3(LO 4) LO 4: MEASUREMENT 6.4.8-Investigates and approximates (alone and/or as a member of a team) • perimeter using rulers or measuring tapes • area of polygons (using square grids) in order to develop rules for calculating the area of squares and rectangles volume or capacity of objects	6.4.6-Using appropriate measuring instruments (with understanding of their limitations) to appropriate levels of precision including : • rulers, metre sticks, tape measures and trundle wheels to measure length	Investigation and approximation of perimeter, area of polygons, Volume / Capacity of objects	Mathematical instruments, two-dimensional shapes and three-dimensional objects	Forms Home works, class works ,tests, assignments, projects Methods Teacher, self, peer and group assessment Tools Memorandum rubric	Investigation s, working in pairs and as individual

	(by packing or filling them) in order to develop rules for calculating volume of rectangular prisms. 6.4.9-Investigates relationships between perimeter and area of rectangles and squares. 6.4.10-Investigates relationships between surface area, volume and the dimensions of rectangular prisms. 6.4.11-Recognises and describes angles in two-dimensional shapes, and three – dimensional objects and the environment in terms of: • right angles • angles smaller than right angles angles greater than right angles.	MATHEMATICS LO 3: Space and shape 6.3.2 Describes and classifies two – dimensional shapes and three-dimensional objects in terms of properties including : • faces, vertices and edges • length of sides • Angle size of corners.	Investigation of relationships between perimeter, volume, surface area in rectangles, prisms and squares. Recognition and description of right, obtuse and acute angles.			
Week 9	CLUSTER 2(LO 5) LO 5: DATA HANDLING 6.5.7-Critically reads and interprets data presented in a variety of ways (including own representations in the media-words, graphs, pie graphs) to draw conclusions in making predictions sensitive to the role of : • context (e.g. rural or urban , national or provincial) • categories within the data	Natural Sciences LO 1: Scientific investigation 6.1.3 Evaluate data and communicates findings relates observations and responses to the focus questions	Reading, interpretation and analysis of data. Drawing conclusions and making predictions.	Graph paper, Worksheets	Forms Home works, class works tests, investigations and projects Methods Teacher, self, peer and group assessment Tools Memorandum rubric	Investigations, working in pairs and as individual

	(e.g. age, gender, race) other human rights issues.					
Week 10	CLUSTER 3(LO 5) 6.5.8-Predicts the likelihood of events in daily life based on observation, and places them on a scale from impossible to certain. 6.5.9-Lists possible outcomes for simple experiments (including tossing a coin, rolling a die and spinning a spinner) 6.5.10-Counts the frequency of actual outcomes for a series of trials.	MATHEMATICS LO 1: Numbers, operations and relationships 6.1.11Uses a range of strategies to check solutions and judge the reasonableness of solutions	Probability	Coins, pack of cards, dice, games	Forms Home works, class works tests, investigations and projects Methods Teacher, self, peer and group assessment Tools Memorandum rubric	Investigations, working in pairs

WEEK : 1-2 LESSON PLAN **GRADE**: 4

DURATION : **CONTENT IN CONTEXT: NUMBER RECOGNITION**

LOs AND ASs	LEARNING ACTIVITIES	DETAILS OF ASSESSMENT	PROVISIONS FOR LEARNERS WITH BARRIERS TO LEARNING	DATE COMPLETED
CLUSTER 1 **4.1.1 Count forwards and backwards in 2s, 3s, 5s, 10s, 25s, 50s and 100s between 0 and 1 000.** **4.1.3 Recognises and represents the following numbers in order to describe and compare them :** • **Whole numbers to at least 4-digit numbers (including expanded notation of numbers to 1000) ;** • **Common fractions with different denominators including**	**Daily 10minutes mental maths activities and homework should be given** **ACTIVITY 1 (10 minutes)** • **Learners count ,in groups, in:** - **2s starting from 50 to 150 and backwards** - **3s starting from 110 to 200 and backwards** - **5s starting fRom 130 To 200 and backwards** - **10s starting from 672 to 850 and baCkwards** - **25s starting from 799 to 1 000 and backwards** - **50s starting from 350 to 900 and backwards** - **100s starting from 160 to 801 and backwaRds** **ACTIVITY 2 (50 minutes)** **Learners are given the following activity to do, individually. The teacher reads through the questions with them to make sure that they all understand.** **1.FIll in the missing numbers:** **750 ; — ; ; — ; 765 ; — ; — ;** **— ; 685 ;—;** **2. 972 ; — ; 952 ; ; — ; — ; — 912** **3. Fill in the missing numbers on the number line:** ◄——|——|——|——|——|——|——|———► 411 413 A B C D 423—	**FORM** **Class work** **Assignment** **Test** **METHOD** **Teacher assessment** **Peer Assessment** **Group Assessment** **TOOL** **Memorandum** **Checklist** **Rating Scales**	• **Learners are asked to count in** - **2s from 20 to 100 and backwards** - **10s from 100 to 500 and backwards ,then they count the ones the others counted**	

<table>
<tr>
<td>halves, quarters, and eighths;
• Common fractions in diagrammatic form;
• Decimal fractions of the form 0,5 in the context of measurement

• Odd and even numbers to at least 1000.
.
4.1.4 Recognises the place value of digits in whole numbers to at least 4-digit numbers.</td>
<td>4. The teacher introduces the concept of thousands by using Dinne's blocks or abacus. Also the importance of seeing 1 thousand as 10 hundreds.

5.Find these following numbers in the grid and then shade them:
i) Five thousand seven hundred and forty-one
ii) Two thousand four hundred and sixty-two
iii) Five thousand and twenty-four
iv) Eight thousand and thirty
v) Four thousand one hundred and seventy eight

<table>
<tr><td>5974</td><td>4178</td><td>2142</td><td>8300</td><td>5782</td><td>9784</td><td>1237</td><td>6284</td></tr>
<tr><td>2164</td><td>6527</td><td>5741</td><td>5024</td><td>6827</td><td>8529</td><td>2462</td><td>8030</td></tr>
</table>

The teacher marks the work with the learners and feedback is given.

<u>ACTIVITY 3</u>

Learners are given place value cards and each group builds a 4-digit number and tell the class the value of each digit , e.g.
6 3 7 4
• What is the value of each digit in the above number ?
• Say the number aloud.
• Write the number 6374 in words.
The activity is repeated using other 4-digit numbers.

<u>ACTIVITY4</u>
4.1 The teacher uses abacus to facilitate the concept of expanded notation e.g 1278= 1x1000+ 2x 100+ 7x10+1x8 . More examples of this nature should be given</td>
<td></td>
<td>Learners are given simpler numbers to shade then they do the ones that were done by the other groups

Ensure spelling is correct</td>
<td></td>
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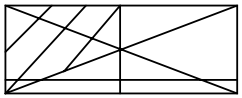
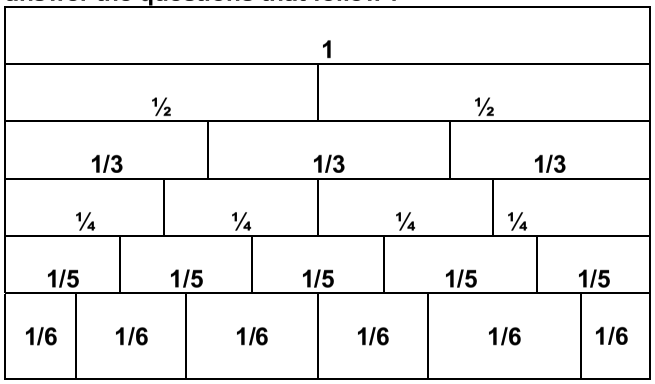
4.1.5 Recognises and uses equivalent forms of the numbers listed above : ♦ **Common fractions with denominators that are multiples of each other;** ♦ **Decimal fractions of the form 0,5; 1,5 and 2,5 and so on ,in the context of measurement**	**A wo4rksheet with an activity such as the following could be given** **4.2 Write the following numbers in an expanded notation** **a) 289** **b) 986** **c) 1654** **d) 3067** **e) 2976** **f) 3740** **4.3 write as simple numbers** **a) 2x100+7x10+0x1** **b) 9x100+8x10+6x1** **c) 1x1000+0x100+2x10+5x1** **d) 2x1000+3x100+0x10+4x1** **e) 5x1000+9x100+1x10+7x1** **<u>ACTIVITY 5</u>** **Learners ,in groups, are given A4 size sheets of paper . They fold once and are asked how many parts they have . Each part is 1 out of 2 .** **They fold again once and are asked how many parts there are . Each part is 1 out of 4 parts.** • **They fold another sheet in any number of times and tell what each part is it.** **The teacher represents these in diagrammatic form** **e.g 1part out of 4 equal parts is shaded written as $^1/_4$**  **3 parts out of 8 equal parts are shaded and written as $^3/_8$** 			

	The teacher gives more examples of this nature and gives an activity on more diagrammatic representations as fractions and vice versa in a worksheet **ACTIVITY6** **Individually ,learners look at the diagram below and answer the questions that follow :**  • **How many ¼ s make ½ ?** • **How many 1/6 s make ½ ?** • **How many 1/6s make 1/3 ?** • **How many ¼ s make a whole?** • **How many 1/5s make a whole?** • **How many ⅓ s make a whole?** **Now predict predict how many 1/10 make a whole** **What do you notice?** **The teacher gives learners worksheet with shaded Numbers to** **ACTIVITY 5** • **Ten learners are called to the front and are grouped into two.** • **Each group has five learners out of ten=5/10 =0,5 =½**		**Able learners should h elp learners with poor folding skills**	

	• Investigate further 1/10=… 2/10= 4/10= 6/10= 7/10= 9/10= What do you notice? • Now investigate 20/10 = 21/10 = 24/10= 37/10= 75/10= 124/10= 3456/10= Explain your observations to your partner The teacher assists learners to see the emerging pattern and generate the rule. The teacher consolidates and gives more activities for learners to use the rule and works backwardsas well e.g 0,4= $^{4}/_{10}$ <u>ACTIVITY 6</u> 6.1 Learners measure ,using their rulers , different objects in the classroom and giveanswers in both mm and cm .They convert milimetres to centimeters The teacher guides learners to discover that 10mm=1cm They collect their readings and tell others what they observe 6.2 Place the numbers in their respective place value 23,7; 56,9; 110,7; 2567,8; 584,1 TH H T U , t		Assist learners with poor measuring	

	Learners are asked to write the place values in each number they have come up with when measuring **<u>ACTIVITY 7</u>** **Match the fraction and decimal that are equal in size.** **8/10 0,1 16/10 2,8** **3/10 0,9 18/10 6,0** **1/10 1,0 43/10 1,6** **10/10 0,8 28/10 4,3** **9/10 0,3 60/10 1,8** **<u>ACTIVITY 8</u>** **Using a 100 grid learners colour multiples of 2** **Learners discuss about the remaining numbers about what they notice in relation to the coloured numbers (work in pairs)** **Learners do investigation to differentiate between odd and even numbers in their own crude methods** **Teacher should consolidate so that learners see that an odd number is always 1 more or less than an even number**		**skills**	

INTEGRATION: **<u>Mathematics</u>** AS 2.1: Investigates and extends numeric and geometric patterns looking for a relationship or rules. AS 5.1: Poses simple questions about own school
<u>RESOURCES</u> : Abacus ;Calculators; Number Grid; Wall charts; Fraction walls; A4 sheets **Fraction diagrams; Counters; Bottle tops; Abacus, Dinne's blocks**
<u>REFLECTIONS</u> :

LESSON PLAN EXEMPLAR

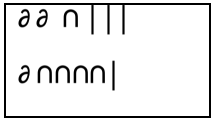
DATE:	LEARNING AREA : MATHEMATICS	NUMBER OF LESSONS :02	GRADE : O5
DURATION : 2Hours	CONTENT IN CONTEXT : Number recognition .	DATE COMPLETED :	
SELECTED LOs AND ASs	**LEARNING ACTIVITIES**	**DETAILS OF ASSESSMENT**	**PROVISION FOR LEARNERS WITH BARRIERS TO LEARNING**
LO 1:NUMBERS , OPERATIONS AND RELATIONSHIPS **5.1.1** **Counts backwards and forwards in whole number intervals and fractions** **5.1.2 Describes and illustrates different ways of writing numbers in different cultures including local throughout history.** **5.1.4** **Recognises the place value of digits in whole numbers to at least 4-digit numbers .** **5.1.3** **Recognises and represents the following numbers in order to compare them:** **3.1 whole numbers to at least 4-digit numbers** **3.3 decimal fractions of the form 0,5; 1,5 and 2,5 and so on , in the context of measurement .**	**Daily 10 minutes mental maths activity and homework should be given** **ACTIVITY 1- (Individually)** **(10 MINUTES)** **Learners complete the following:** **a) 2 625; 2 650; 2 675;---; ---** **b) 4 280; 4 276; 4 282 ; ----; ---** **c) 32 405; 32 048; 32 051;--;---** **d) 53 115; 53 105 ; 53 095; --;--.** **e) 54 221; 54 218; 54 215;---;---** **ACTIVITY 2** **(20 minutes)** **Learners in groups are given flash cards with instructions to count . Each group presents verbally its answers** • **In fives from 47; 52; 57... 202** • **In tens from 63; 73... 323.** • **In fifteens from 100 ... 370.** • **In twenties from 220... 400** • **In fifties from 1050... 1600.** • **1n sixties from 1060 ...1500** • **In hundreds from 870...2000** • **In $^1/_2$ s from 200... 220**	**FORMS;** **Verbal Presentations** **Class work** **Homework** **METHODS:** **Teacher** **Group** **TOOLS** **Memorandum** **Observation sheet**	**Use simple language when giving instructions.** **Give more time to groups that struggle with counting.** **Teacher recaps on fractions for learners who struggle**

	• In $^1/_4$ s from $1^1/_2$ ...10 **ACTIVITY 3** **(20 minutes)** **3.1 Learners clap their hands /stamp their feet counting backwards starting from:** • **1000; 900; ... 0.** • **500; 497;; 494... 419** • **2000; 1 800; 1 600...400.** **3.2 Fill in the missing gaps** **The teacher recaps on addition of fractions such as $^1/_2$s; $^1/_4$ s$^1/_5$; etc, then give the activity below** **$10^1/_2$; ----; ----; 9; -----;. -----; -----;.7-----;. -----;.-----;.5** **$14^1/_3$ -----;. -----;-----;.13; -----;$12^1/_3$-----;. -----;$11^1/_3$** ◄|——|——|——|——|——|——|——|———► **8300 8 175 8125** **ACTIVITY 4** **(15 minutes)** **1. Learners complete the following number patterns :** **a) 22 500; 22 550; -----; 22 750.** **b) ---;---; 17 800; 17 775; ----.** **c) 6 $^1/_4$; ----; 6 ¾ ; 7; ---; ---.** **d) 23 010; 23 005; 23 000; ---; ---.** **e) 1100; -----;1300;-----;1500** **f) 7500; ----; 5500;-----; 1500** **g) $25^1/_5$; 25; $24^4/_5$ ---; ---.** **ACTIVITY 5**		

(30 minutes)
The teacher brings a chart showing how Egyptians and Romans wrote numbers

The ancient Egyptians represented : [day 1]	The ancient Romans wrote: [day 2]
1 with this symbol : /	1 like this : I
10 with this symbol : ∩	5 like this : V
100 with this symbol :𓍢	10 like this : X
	50 like this : L
	100 like this : C

a) What is the value represented in the following: (Learners respond orally)



b) What numbers do these symbols represent? :

- **XVII**
- **XIX**
- **CCCXV**
- **XC**
- **LX**

c) More activities are given representing standard numbers to be converted to Egyptian and Roman number systems
e.g. 234
4509
68 235
12 456
65 450

	Activity **(15) minutes)** **1. What is the value of the numbers represented by these symbols :** **a)** | | | ∩ ∩ ∂ ∂ **=** **b)** ∂ ∂ ∂ ∩ ∩ ∩ | | **=** **c)** ∂ ∂ ∩ ∩ | | | **=** **The teacher consolidates all the three numerical systems** **Homework** **First brainstorm for 10mins** **Learners are asked to make enquiry on how counting was done in olden days .**		
Integration: Mathematics-AS 5.2.1: Investigates and extends numeric and geometric patterns….. **Life Orientation- AS: Compares the relationships between adults and children in a variety of situation in different cultural contexts.**			
Resources: Number line strips, Flash cards, Flip Charts			
Teacher Reflections :			

LESSON PLAN EXEMPLAR

DATE:	**LEARNING AREA : MATHEMATICS**	**NUMBER OF LESSONS :02**	**GRADE : O5**
DURATION : 2Hours	**CONTENT IN CONTEXT : Number recognition and place values.**	**DATE COMPLETED :**	

SELECTED LOs AND ASs	LEARNING ACTIVITIES	DETAILS OF ASSESSMENT	PROVISION FOR LEARNERS WITH BARRIERS TO LEARNING
LO 1:NUMBERS , OPERATIONS AND RELATIONSHIPS **5.1.1** **Counts backwards and forwards in whole number intervals and fractions** **5.1.2 Describes and illustrates different ways of writing numbers in different cultures including local throughout history.** **5.1.4** **Recognises the place value of digits in whole numbers to at least 5-digit numbers .** **5.1.3** **Recognises and represents the following numbers in order to compare them:** **3.1 whole numbers to at least 4-digit numbers** **3.2 common fractions to at least eighths ;** **3.3 decimal fractions of the form 0,5; 1,5 and 2,5 and so on , in the context of measurement .**	**TASK 1** **ACTIVITY 1** (10 minutes) Teacher's instruction: • Learners in groups are required to decide on the year in which one was born . • They write that number in words and in numbers. REVIEW of previous day`s homework (10 minutes) **ACTIVITY 2** (30 minutes) The teacher introduces place values from the years given by groups. TH ; H ; T ; U. Learners are given spinners and scatter boards . They throw spinners and record the results . They write the numerical value in place value, in words and verbally say the number **ACTIVITY 3** (10 Minutes) The teacher extends place value to ten thousands using an abacus. Learners name numbers Teacher gives learners flash cards with different numbers as shown below and ask the learners to stand in a row . Each learner tells the class the value of the number s/he carries . 7 3 6 8 4	FORMS Class works Home works METHODS Teacher Group TOOLS Memoranda Checklists	Individual attention given to non cooperative groups. Teacher assists learners with problem of naming and writing common and decimal fractions . Use simple language .

CLASSWORK (40 Minutes)

1. What is the value of the underlined digit in each of the following numbers?

a) 4 6<u>7</u>2
b) 10 9<u>8</u>7
c)2<u>5</u>8 955
d) 3<u>1</u> 508

2. Shade in the following numbers

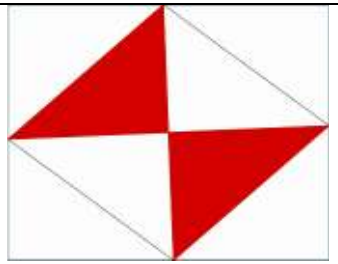
- Four hundred and thirty one
- Seventy-five thousand two hundred and twenty nine
- Eighty thousand , two hundred and sixty-three
- Ninety four thousand and twenty two
- Fifty nine thousand seven hundred eighty four

59 784	4 5879	94 022
7459	80 263	8 229
47 859	85 479	39 785
75 229	431	78 945

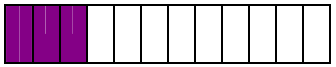
3. Write down the following numbers in figures :

- Seventy eight thousand four hundred and ninety-seven
- Thirty six thousand seven hundred eighty one

4. Match each picture to the symbol



$^{2}/_{8}$ $^{3}/_{5}$ $^{3}/_{12}$



The teacher gives more activities of this nature

ACTIVITY 4: (10 Minutes)
The teacher recaps on the connection between common fractions and decimal fractions e.g.

- Decimal name for tenth is o,1
- Fraction name for tenth is 1/10

Activity 5 (35 Minutes)
5.1. Learners are to complete the table below:

WORD	FRACTION	DECIMAL
Fifth	1/5	0,2
Eighth	----	----
Tenth	----	----
Hundredth	----	----
Thousandth	----	----

5.2. Learners are asked to measure in centimetres using

	rulers the nails of their thumbs , their fingers, hands and feet and record results . Results are then written on the board and each group is to arrange the numbers from smallest to the largest. Teacher gives more activities to consolidate the concept of measurement using decimals 3. Containers holding 2,5 litres ; 0,5 litres; 1 litre; 1,5 litres and 2 litres are brought to class Learners actually fill these containers with water to see relationship between ml and litres Which of the above containers holds : • Less than a litre? • Between half a litre and 1,5 litres ? • Between 1litre and 2 litres ? • The same capacity as half a litre? **Homework** (5 Minutes) 1.Mandla decides to share 15 sheep among his 3 sons , Jack , Bukho and Vusi. Vusi gets 3 sheep, Bukho gets eight sheep and Jack gets the remainder .Write down each share in the form of a common fraction for each son. 2. Arrange the above fractions from smallest to biggest?		
Integration: Mathematics-AS 5.2.1: Investigates and extends numeric and geometric patterns….. **Life Orientation- AS: Compares the relationships between adults and children in a variety of situation in different cultural contexts.**			
Resources : Scatter boards , Spinners ,Fraction strips, flash cards , different types of containers for capacity, Rulers .			
Teacher Reflections :			

GRADE 6 LESSON PLAN EXEMPLAR

WEEK : 1-2 **CONTENT IN CONTEXT: Number Recognition**
DURATION: 8 Hours

LOs AND ASs	LEARNING ACTIVITIES	DETAILS OF ASSESSMENT	PROVISIONS FOR LEARNERS WITH BARRIERS TO LEARNING	DATE COMPLETED
CLUSTER 1 6.1.1 Count forwards and backwards in decimals.	Daily include 10 minutes activity at the beginning of the lesson and give homework Activity 1 Learners count ,in pairs, in: - 5s starting from 32 420 to 32 485 and backwards - 10s starting from 6 805 to 7 250 and backwards - 50s starting from 35 500 to 40 000 and backwards - ½s starting from 100 to 110 and backwards Activity 2 The teacher does some recap on addition of fractions such as ½+$^1/_2$ = 1 ¼+$^1/_4$= $^1/_2$ Do more examples of this nature Learners do the following individually and write down their solutions 2.1 Fill in the missing numbers: 2.1.1 ¼ ; ½ ; ▬ ;1 ; ▬ ; ▬ ; 2.1.2. ◄——|——|——|——|——|——|——|—► $4^4/_5$ $4^3/_5$ I $4^1/_5$ J $3^4/_5$ K–	FORM Class work Homework Assignment/ investigation Test METHOD Teacher Peer Assessment TOOL Memorandum Checklist Rubric	• Learners are asked to count in - 2s from 20 to 100 and backwards - 10s from 100 to 500 and backwards ,then they count the ones the others counted Use concrete material for struggling learners, such as paper folding	

	2.1.3 100 000 A B 400 000 C D E 2.2 Write solutions of the following by counting 2.2.1 in $^1/_2$ s starting from 156½ to 165 2.2.2 backwards in $^1/_5$s from $96^1/_5$ to $82^4/_5$ 2.2.3 in 1000s starting from 25 010 to 35 050 2.1.3 backwards in ¼s from $23^1/_2$ to $12^3/_4$ The teacher marks the work with the learners and feedback is given The teacher also consolidates and gives some homework <u>Activity 3</u> The teacher recaps on addition of decimals such as 0,5 + 0,5 = 1 0,25 + 0,25 = 0,5 There is also a need to relate 0,5 to ½, 0,25 to ¼ as it is crucial for learners to see these as equivalent fractions. Do more examples to relate decimals to common fractions Fill in the missing numbers on the number line: a) 0,5 1 A 2 B C D b) 10,25 10,5 E 10,75 F G H c) 12,55 A B 12,70 12,75 12,80 d) $\frac{1}{10}$ A $\frac{3}{10}$ B C		Learners are given simpler number sentences to fill in the missing numbers in pairs Learners are given a list of decimal fractions to add and convert to common fractions. Use concrete materials to develop concept formation	

6.1.4 Recognise the place value of digits in Whole numbers to 6-digits	The teacher adds more similar activities <u>Activity 4</u> The teacher recaps on multiplication tables of intervals s/he will be using e.g 5s, 3s, 4s, 7s etc The teacher gives an activity for learners to do individually in writing 4.1 Count forwards in intervals of a) 0,5s from 101 to 117,5 b) 0,2s from 42,4 to 60,8 c) 0,3 from 11,0 to 21,9 d) 1,5s from 64,5 to 80 e) 2,5s from 256 to 300 f) 0,25s from 15,75 to 20,25 4.2 Count backwards in intervals of a) 0,5s from 27,0 to 14,5 b) 0,4s from 345,2 to 300 c) 0,7s from 700 to 642 d) 0,25s from 151 to 130 e) 0,9s from 9,9 to 0 The teacher consolidates and gives feedback assess using an investigation or assignment. <u>ACTIVITY 5</u> 5.1 Educator explains to learners the relationship between place value system up to hundred thousand e.g 10 units =1Ten 10 Tens = 1 hundred 10 hundreds= 1 thousand etc Use Dinne's blocks or Abacus to facilitate meaningful concept formation Also Break down the numbers to consolidate place value concept formation e.g. 46 729= 4x10000 +6x1000+7x100+ 2x10 +1x9 Give more examples of the above nature		Unpack terminology such as "intervals" Use simpler intervals first Use manipulatives to help learners make meaning	

6.1.3 Recognises and represent numbers in order to compare:

- to a minimum of 6 – digit whole numbers,
- 0 in terms of its additive property.
- 1 in terms of its multiplicative property

5.2 Learners are asked to verbally say the number, write it in words and represent numbers in symbols e.g .

Symbol	Words	Verbal
23 678		
	seventy thousand two hundred	
123 659		
932 708		
	Two hundred and one thousand and thirty one	
709 478		

Educator assists the learners to represent numbers above on a place value notation diagram:
e.g.

HTh	TTh	Th	H	T	U
4	5	1	6	5	8

Give more examples to consolidate concept formation

5.3 Determine the place value of the underlined digits

a) 45<u>1</u> 658 _____
b) 65<u>2</u> 1<u>7</u>3 _____
c) <u>7</u>16 5<u>2</u>9 _____
d) 8<u>7</u>1 475 _____
e) 382 <u>6</u>94 _____
f) 453 27<u>9</u> _____

Teacher consolidates work done

<u>ACTIVITY 6</u>

6.1 Copy the number sentences and fill in the missing numbers;-

a) 0 + ☐ = 300

b) 698 + ☐ = 698

	c) $\square$ + 459 = 459 d) $^1/_2$ + $\square$ = $^1/_2$ e) 0,8 + 0 = $\square$ Ask learners what do they notice in the above questions and share their observations with their partners Learners are required to report their observations to the whole class and the teacher formalizes the rule 6.2 Complete the following number sentences;- a) 1 x 123 = ____ b) 465 x ____ = 465 c) ____ x 1000 = 1000 d) $^3/_4$ x 1=____ e) 1 x___ =$^4/_5$ f) 0,54 x 1=___ g) 1x___= 3,5 Learners are asked about what they notice in the above number sentences and share their observations with their partners Learners report their observations to the whole class and rules are generated and formalised			
6.1.2 Describes and illustrates written number systems different to own.	**ACTIVITY 7** The teacher gives Learners the background on different number systems of different cultures Learners are given a list of Egyptian and Roman numbers to work with;-			

	The ancient Egyptians represented: one with this symbol: | 10 with this symbol: ∩ 100 with this symbol: 𓍢 7.1 What is the value of the numbers represented? a) 𓍢 𓍢 ∩∩||| = _____ b) 𓍢 𓍢 𓍢 ∩∩∩∩|| = _____ c) |||||∩∩∩ 𓍢 𓍢 𓍢 𓍢 = _____ Do more activities of this nature 7.2 The ancient Romans wrote one as I; five as V; 10 as X; 100 as C and 1000 as M. 7.2.1 Write the following numbers in standard numbers: a) MMCCXXXIII = _____ b) MCCXXXIV = _____ c) MCCCXXXVIII = _____ More activities are given by the teacher 7.2.2 Write the following Numbers in Roman Numerals;- a) 1156 b) 2328 c) 3217 More activities are given 3.2.3 A Consolidative activity including all 3 systems should be given such as		Learners convert the Standard number systems into various number systems starting with simpler numbers e.g 1; 2 digit numbers	

Date:	Learning Area: Mathematics	Number of lessons: 3	Grade 9

	<table><tr><td>Roman</td><td>Egyptian</td><td>Standard</td></tr><tr><td></td><td></td><td>5 672</td></tr><tr><td>MCXXV1</td><td></td><td></td></tr><tr><td></td><td>𓆐 𓎆𓎆𓎆𓎆𓏺𓏺</td><td></td></tr><tr><td></td><td></td><td>87 406</td></tr></table>Include more activities of this nature Also use flash cards to represent these numbers and learners verbally say the number (can play a game who ever says most correct wins the game)			

INTEGRATION: : Mathematics 6.2.1- Investigate and extend numeric and geometric patterns looking for a general rule or relationships:

- represented in physical or diagrammatic form.
- of the learner's own creation.

6.2.2- Describe observed relationships or rules in own words.

RESOURCES : Abacus; Dinne's blocks; flash cards; worksheets

EXPANDED OPPORTUNITIES
Fast learners can be given more challenging activities

REFLECTIONS :

Duration:4 hours	Content in context: Rational Numbers		
Selected Los and ASs	Learning Activities	Details of Assessment Forms, Methods and Tools	Provision for learners with barriers to learning
LO 1: NUMBERS, OPERATIONS AND RELATIONSHIPS AS 6 • Uses a range of techniques and tools (including technology) to perform calculations efficiently and to the required degree of accuracy, including the following laws and meanings of exponents (the expectation being that learners should be able to use these laws and meanings in calculations only): • $x^m . x^n = x^{m+n}$ • $\frac{x^m}{x^n} = x^{m-n}$ • $x^0 = 1$ • $x^{-n} = \frac{1}{x^n}$ INTERGRATION	**Teacher's activity (20 minutes)** Revise the basics of powers. 2^4 is called a power. 2 is called the base. 4 is called the exponent/index The meaning of 2^4 is extremely important as it serves as a basis for future discoveries. • 2^4 means 2.2.2.2 or 2x2x2x2 • 5x5x5 = $5^{[\ ]}$ Provide more examples in preparation for the activity that follows. **Learner's activity** **Activity 1 (1 Hour)** Use the definition of a power to expand each of the following: *1)* $2^3 . 2^4 = (2.2.2).(2.2.2.2) = 2^{\square}$ Give at least 20 problems as this idea is crucial in the discovery of the laws. • Ask learners if they can get to the answer without doing the middle step! (This is the rule that we want for the multiplication of powers: $x^m . x^n = x^{m+n}$) Activity 2 (1 hour) The learners need less support from the teacher in discovering the next rule. The following may even	**Form** Homework Investigation **Method** Teacher Assessment **Tool** Marking memorandum **Form** Investigation Homework **Method**	Ensure that the language used is simple and clear. Difficulty in generalizations, give learners more exercises to discover the rule. Do first few examples without formulating a rule just to get the learners started if they are unsure of what to do. Learners that have seen the rule quickly may be asked to formulate a rule for raising a power by a power: Additional exercise: Find a rule for each of the following by making use of the definition (meaning) of x^n. 1. $(2^3)^4$ 2. $(2^3 7^2)^4$ …

<table>
<tr>
<td>Within:
LO 2
9.2.8
Uses the laws of exponents to simplify expressions and solve equations.</td>
<td>be given as a homework assignment:

Complete each of the following by filling in the missing values:

1. $\frac{2^5}{2^3} = \frac{2 \cdot 2 \cdot 2 \cdot 2 \cdot 2}{2 \cdot 2 \cdot 2} = 2^{\square} = 2$ (After cancellation!)
2. $\frac{x^6}{x^{\square}} = \frac{x \cdot x \cdot x \cdot x \cdot x \cdot x}{x \cdot x \cdot x \cdot x} = x^{\square}$
3. $\frac{10^7}{10^{\square}} = \text{——————} = 10^{\square}$

Give at least 20 problems as this idea is crucial in the discovery of the laws.

The expectation is that learners will formulate the following rule:

$\frac{x^m}{x^n} = x^{\square - n}$

Activity 4
<u>Please note</u>:
The rule below is correct:
• $base^{\text{top exponent} - \text{bottom exponent}}$

<u>Activity 3 (30 minutes)</u>

Use the above law to fill in the missing values:
<table><tr><th>Answer as an integer.</th><th>Expression</th><th>Exponential form.</th></tr><tr><td></td><td>$\frac{5^{\square}}{5^3}$</td><td>$5^{\square}$</td></tr><tr><td></td><td>$\frac{8^{\square}}{8^5}$</td><td>$y^{\square}$</td></tr><tr><td></td><td>$\frac{x^{\square}}{x^4}$</td><td>$x^{\square}$</td></tr></table>
Use the information from the table above to complete the following rule:</td>
<td>Teacher/peer/individual Assessment
Tool
Marking memorandum

Form
Investigation
Method
Teacher/peer Assessment
Tool
Marking Memorandum</td>
<td>Please note:
Do not cancel the base, a in the expression below:
$\frac{a^3}{a^4}$

<u>Please note</u>:
The rule below is incorrect:
• $base^{\text{bottom exponent} - \text{top exponent}}$</td>
</tr>
</table>

	$x^0 = \square$ Possible questions for discussion: Will this statement, $a^0 = 1$, always be true for any non-zero base, Justify your answer. <u>Activity 4 (50 minutes)</u> Use the rule discovered in activity 2 and activity 3 to formulate a rule for each of the following: Please note that the following law is also a special case of law 2 in activity 2. Exercises should include the following types of problems. $\frac{1}{2^6} = \frac{2^{\square}}{2^{\square}} = 2^{\square}$ Rule (discovered by learners): $x^{-n} = \frac{1}{x^{-n}}$ Give ample exercises in text books that will consolidate the rules that have been discovered. Use exponential laws in order to simplify expressions and solve equations.	**Form** Investigation **Method** Teacher/peer Assessment **Tool** Marking Memorandum	
Resources: • Text books • Calculator			

Teacher reflection			
Expanded Opportunities	$x^m \cdot x^n \cdot x^p = x^{m+n+p}$ $(x^m)^n = x^{mn}$ $(a^m \cdot b^n)^p = a^{mp} \cdot b^{np}$ Solve for x: $2^x = 8$		