INTRODUCTION

Mathematics is an indispensable tool in the world. The knowledge and application of mathematics in everyday activities provide the critical core skills of computation, translating problems into mathematical language, application of mathematical concepts and being able to find solutions.

The General objectives for Grades 1 – 6 Mathematics:

1. **Acquire the necessary skills that allow learners to become problem solvers and informed decision makers.**
2. **Make connections between Mathematics and the Global World.**
3. **Bring Mathematics to life with many real-life applications.**
4. **Become successful in the study of Algebra II, Geometry, Trigonometry and Pre-calculus.**

A learner-centered approach is emphasized in this curriculum. This is based on the firm belief that learning becomes more permanent, meaningful and exciting when learners themselves take ownership of the learning process. Instructors are therefore urged to contrive those classroom strategies that engage learners actively in the teaching and learning process.

GRADE: 1
PERIOD: I
TOPIC: SET AND NUMERATION

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: Use sets and numbers to recognize gender roles in a given family.	Upon completion of this topic, learners will: 1. Define set and Write examples of sets. 2. Describe the number of members (elements) of a set as a property of sets. 3. Identify and recognize the union of sets as addition. 4. Use subsets to introduce subtraction. 5. Solve problems using addition symbol with digits 1 to 10. 6. Solve problems using subtraction symbol with digits 1 to 10.	Sets and Number Sets of boys, sets of girls, sets of boys and girls Set of family members subsets of family members	**Inclusive and differentiate Learning**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: 1. Group boys and girls separately to form sets 2. Represent family by grouping boys and girls together. 3. Represent entire family members (boys, girls and parents). 4. Discuss and determine what should be the roles of boys, girls, fathers and mothers in the family. 5. Role play by using set of boys and girls to show the value of each sex and their roles and responsibilities.	A. Primary School Text: Elementary Mathematics for Liberia Book 1 **Links**: www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving • Digital Skills **ASSESSMENT STRATEGIES**: That can be used to check competences. Select relevant options: -Attendance -Oral questions and Answers -Class Assignment and Participation -Observation -Assignments

					-Research
					-Quiz
					-Test
					-Exam

GRADE: 1
PERIOD: II
TOPIC: NUMERATION

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: Read and write numbers represented in various formats (numerical, pictorial etc.).	Upon completion of this topic , learners will: 1. Count objects up to 40. 2. Read and write numbers up to 40. 3. Compare and order numbers up to 40. 4. Identify addition and subtraction facts up 40. 5. Solve problems involving basic addition facts.	1. Reading and writing numbers up to 40 2. Compare and order numbers up to 40 3. Reading and writing numbers using pictures and number line. 4. Other addition facts up to 40 5. Solving problems involving addition and subtraction facts up to 40	**Inclusive and differentiate Learning**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to match objects (boys and girls) with numbers up to 40 and assist learners to: ❖ Read numbers represented in various formats (numerical, pictorial). ❖ Explain why one number is greater than, less than or equal to another number. ❖ Compare sets of objects and numbers to multiples of 5s and 10s. ❖ Identify values between any two given numbers. ❖ Compare numbers represented on number lines. ❖ Use marked flash cards up to 40 for reading and writing. ❖ Compare and order numbers up 40. ❖ Solve problem using addition and subtraction facts up to 40.	A. Primary Textbooks: Elementary Mathematics for Liberia Book 1 B. Other: Resources/ Supplementary Ruler, poster sheets, pencils, flash cards, pictures of different objects **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research - Quiz - Test - Exams

GRADE: 1
PERIOD: III
TOPIC: PLACE VALUE

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: 1. Read and write two digit numbers and show their place value. 2. Count and write whole numbers by 2s, 5s and 10s and apply counting skills to recognize the value of money, and other things in their home and school.	Upon completion of this topic, learners will be able to: 1. Read and write two digit numbers. 2. Determine the place value of a two digit number. 3. Compare and order numbers up to 100. 4. Find numbers before, after, and between numbers. 5. Count by 2's, 5's and 10's up to 100.	1. Reading and writing numbers up to 100 2. Comparing and ordering numbers up to 100 3. Numbers before, after, and between 4. Ordinal numbers to 100 5. Using of place value model	**Inclusive and differentiate Learning**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles Guide learners to match objects (boys and girls) with numbers up to 40. Assist learners to: ❖ Read numbers represented in various formats (numerical, pictorial) ❖ Explain why one number is greater than, less than or equal to another number ❖ Compare sets of objects and numbers to multiples of 5s and 10s ❖ Identify values between any two given numbers	A. Primary Text: Elementary Mathematics for Liberia Book 1 1. Place value to model 2. Bundles of stick in tens 3. Sack of sticks in tens 4. Sack of rocks in tens 5. Number chart 6. Abbacus counters B. Secondary Text: C. Other: Resources/Supplementary Readings: **Links**: www.funbrain.com www.mathblaster.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research - Quiz - Test

				www.khanacademy.com	Exams
			❖ Compare numbers represented on number lines ❖ Use marked flash cards up to 40 for reading and writing ❖ Compare and order numbers up to 40 ❖ Solve problem using addition and subtraction facts up to 40	www.mathgametime.com www.splashmath.com www.mathplayground.com	

SEMESTER TWO

GRADE: 1
PERIOD: IV
TOPIC: ADDING AND SUBTRACTING 2- DIGIT NUMBERS

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS

Learners are able to:
 	
Apply addition and subtraction skills to solve real life problems.
	Upon completion of this topic, learners will be able to:
	
	1. Add and subtract tens.
	.
	2. Add 2-digit numbers without regrouping.
	
	3. Subtract 2-digit numbers without regrouping.
	.
	4. Solve problems involving addition and subtraction.
		Adding multiples of tens
		
		Subtracting multiples of tens
		
		Adding 2-digit numbers without regrouping
		
		Subtracting multiples of 10 without regrouping
		
		Regrouping ones (renaming)
		
		Subtracting 2-digit number
		
		Solve problems involving addition and subtraction of 2-digit
			Inclusive and differentiate Learning:
			Individual seat work or group work in mixed groups, according to abilities, gender and learning styles.
			
			Guide learners to:
			
			1. Add and subtract multiple of tens.
			
			2. Work in groups to add and subtract multiple of tens using base 10 models.
			
			3. Count, add and subtract multiples of ten mentally.
			
			4. Regroup ones; examples:
			  a. The family of 10 consists of two addends whose sum is 10, such as:
			  1+9=9+1=2+8=8+2=3+7=7+3 =4+6=6+4=5+5=10; etc.
			
			  b. The family of 11 consists of two addends whose sum is 11, such as:
				A. Primary Text: Elementary Mathematics for Liberia Book 1 :Other: Resources/Supplementary Materials; Place value chart; Addition/subtraction(chart/table), Liberian currency
				
				Links:
				
				www.funbrain.com
				
				www.mathblaster.com
				
				www.khanacademy.com
				
				www.mathgametime.com
				
				www.splashmath.com
				
				www.mathplayground.com
					EXPECTED COMPETENCIES:
					
					• **A**nalytical skills
					
					• Problem-solving
					
					ASSESSMENT STRATEGIES:
					Can be used to check competences. Select relevant options:
					
					- Attendances
					
					- Oral questions and Answers
					
					- Class Assignment and Participation
					
					- Observation
					
					- Assignments
					
					- Research
					
					- Quiz
					
					- Test

			9+2=2+9=8+3=8+3=4+7=7+4 =5+6=6+5=etc. 5. Adding or subtracting 2- digit number using trading. 6. Adding and subtracting 2- digit numbers using place value chart.		Exams

SEMESTER TWO

GRADE: 1
PERIOD: V
TOPIC: MEASUREMENT

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: 1. Demonstrate ability to determine length, width, capacity, and weight. 2. Tell time and count money using Liberian dollars.	Upon completion of this topic, learners will be able to: 1. Explain the importance of measurement. 2. Discuss the idea of length. 3. Describe Weight/mass. 4. Estimate length, weight using selected unit of measure. 5. Tell different times of the day. 6. Identify Liberian Money in terms of unit value. 7. Describe capacity (space within an area or volume).	The importance of measurement Estimating length Ideas of weight and capacity using standard and non-standard units of length Telling time Counting Liberian Money	<u>**Inclusive and differentiate Learning**</u>: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: 1. Discuss the importance of measurement-i.e. books, class door, their heights, desk, water, cup of rice, etc. 2. Compare the weight and height of two learners to show why there is a difference between the two. (E.g. learner of same height might not have the same weight vice versa). 3. Estimate the length of the class by pacing length of their arms, by using their fingers, strings, and size of their shoes; by use of paper.	A. <u>Primary Text:</u> Elementary Mathematics for Liberia Book1 B. <u>Other: Resources/Supplementary Readings:</u> Rocks, rope, string, clock if available, Money (Liberian), stickers, paper seal, tapeline, weighing scale, paper clock **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research - Quiz - Test Exams

	8. Measure an area using standard units. 9. Measure an area using non-standard units.		4. Estimate the weights of objects by lifting them up- i.e. (stones, books, school bags, etc.). 5. Use their rulers to measure and record the length of their copybooks, textbooks. 6. Use tape line to measure and record the heights of the boys and girls in the class. 7. Use the paper clock to learn time telling. 8. Determine the capacity of the classroom, glass of water, etc.. 9. Identify and state the value of the Liberian currency.		

GRADE: 1
PERIOD: VI
TOPIC: 1. GEOMETRIC SHAPES
      2. FRACTIONS

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: 1. Differentiate shapes of geometric figures (triangles, rectangles, and circles). 2. Recognize halves, thirds, fourths using fractional chart or number line.	Upon completion of this unit, learners, will be able to: 1. Sort out plane figures according to shapes. 2. Identify triangles, rectangles, and circles. 3. Draw triangles, rectangles, and circles 4. Identify halves, thirds, or fourths.	Sorting shapes Concepts(Ideas) of triangles Concepts(Ideas) of rectangle Concepts(Ideas) of circle Draw shapes (triangle, rectangle, circle) Identifying halves, thirds, fourths	<u>**Inclusive and differentiate Learning**</u>: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: ❖ Differentiate shapes of geometric figures ❖ identify and draw shapes of triangles, rectangles and circles ❖ Show by drawing wholes, halves, thirds, fourths using fractional chart or number line	❖ Straight edge paper shapes of triangles rectangles, squares ❖ Poster sheets showing halves, thirds, fourths ❖ Number lines ❖ Primary textbook ❖ Supplementary Textbook **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving • Digital Skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research - Quiz - Test - Exams

GRADE: 2
PERIOD: I
TOPIC: SETS AND NUMBERS

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: 1. Use a given population data to add and subtract whole numbers. 2. Demonstrate the knowledge of identifying parts of a whole and count up to 100.	Upon completion of this topic, Learners will be able to: 1. Match objects to whole numbers. 2. Add numbers by using the union of two disjoint sets e.g. Use family members (set of boys and girls.) to describe disjoint set. 3. Count by twos, fives, tens up to 100. 4. Compare parts of a whole.	Set and numbers Addition of two or more digit- numbers using the population data Subtraction of two or more digit numbers using the population data Disjoint sets Comparing the kinds of element in a given set using students as a set 1. Sets of disjoint sets 2. Number sequences 3. Parts of a whole	**Inclusive and differentiate Learning:** Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: 1. Use population data to add or subtract two or more elements of the population. 2. Demonstrate sets of children of the same sex in groups without common elements. 3. Organize small groups to draw set of objects and match them with the sets of whole numbers. 4. Compare two disjoint sets and name its elements. 5. Count numbers by 2s, 5s, 10s up to 100.	Primary Text: Elementary Mathematics for Liberia Book 2 1. Set of different numbers 2. Number chart 3. Objects 4. Flash cards 5. Geometric shapes **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • Analytical skills • Problem-solving • Digital Skills **ASSESSMENT STRATEGIES:** Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research - Quiz - Test

					- Exams
			6. Draw a circle and divide it into two parts and compare and name parts of a whole. 7. Form addition sentences using two or more disjoint sets. Example; set of boys and girls describe as disjoint set. The union of these sets will give a single set, with all set of boys and girls in a single set.		

GRADE: 2
PERIOD: II
TOPIC: NUMERATION

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: 1. Read and write numbers. 2. Analysis numbers and their values.	Upon the completion of this topic, learners will: 1. Read and write numbers up to 200. 2. Recognize and name place value of digit of a given number. 3. Write a given number in expanded form. 4. Read and write names for fractional numbers.	Reading and writing 1. Numerals 2. Place value 3. Standard-digit & expanded numbers 4. Fractional numbers	**Inclusive and differentiate Learning:** Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: ❖ Review in small groups reading and writing numeral up to 100 ❖ Read and writing numeral up to 200 ❖ Write digit from place value concepts of a given number. ❖ Read and write fractional numbers ❖ Express three digits numerals in expanded forms or notation. Example: 125 using place value to determine the position of each digit. $100 + 20 + 5$	Primary Text Elementary Mathematics for Liberia Book 2 1. Numbers chart 2. Place value chart 3. Shaded functional illustrations **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground. com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving • Digital Skills **ASSESSMENT STRATEGIES:** Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research - Quiz - Test - Exams

GRADE: 2
PERIOD: III
TOPIC: OPERATION PART I

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: Solve addition and subtraction problems involving 2-digit and three-digit numbers without regrouping.	Objectives: Upon completion of this topic, learners will be able to: 1. Find the sum of three or more two-digit numerals without regrouping. 2. Use equality and inequality in addition. 3. Subtract one digit number from two digit numbers and two digit numbers from two digit number without regrouping. 4. Use population concept as specific example.	1. Addition of 3 or more two digit numbers without regrouping 2. Subtraction of 2-digit numerals without regrouping 3. Equality and inequality 4. Addition and subtraction of number of males and females in a Family	**Inclusive and differentiate Learning**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: ❖ Add 3 two digit numerals without regrouping ❖ Add 4 two digit numerals without regrouping ❖ Subtract 2-digit numerals without regrouping E.g. Thirty-six learners attended hospital for malaria. If seventeen of them	Primary Text" Elementary Mathematics for Liberia Book 2 ❖ Numbers counter, ❖ Wall charts ❖ Prescribed textbook **Links**: www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving • Digital Skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research - Quiz - Test

			were boys, how many were girls? ❖ discuss the concept of the properties of additions of equality and inequality (> <, =,) using 1 or 2-digit numerals Example: 7+ 6 __ 13 7+ 6 ___ 15 7 +6 ___ 10 ❖ add and subtract two sexes in a given family		- Exams

GRADE: 2
PERIOD: IV
TOPIC: OPERATION PART II

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: Adopt skills of solving addition and subtraction involving 2-digit numbers using regrouping.	Upon completion of this topic, learners will: 1. Solve addition problem using regrouping. 2. Solve subtraction problem using regrouping. 3. Multiply 1-digit numerals	1. Addition of 3 or more two digit numbers using regrouping 2. Subtraction of 2-digit numerals using regrouping	**Inclusive and differentiate Learning**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: ❖ Discuss and illustrate in smaller groups the idea of regrouping of 3 or more two-digit numbers using addition ❖ Subtract two digit numerals using regrouping and additional let them discuss the concept ❖ Play multiplication games of one-digit numerals	Primary Text Elementary Mathematics for Liberia Book 2 1. Numbers counters, bundles of sticks Wall charts 2. Textbook	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving • Digital Skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research - Quiz - Test - Exams

GRADE: 2
PERIOD: V
TOPIC: MEASUREMENT

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: 1. Demonstrate skills in measuring different objects relating to length, weigh and capacity. 2. Use the clock to tell time and be conscious of time. 3. Determine monetary value of the local currencies.	Upon completion of this topic, learners will: 1. Describe weight and capacity. 2. Measure lengths, balancing weights and capacity using local units. 3. Use standard units of measurement. 4. Tell time for different times of the day. 5. Determine the value of the currency in circulation.	weight and Capacity Measurement of lengths(heights) Standard unit of measurements Time telling Monetary value or Currency	**<u>Inclusive and differentiate Learning</u>:** Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: 1. Discuss on the description of weight and capacity. 2. Discuss, in smaller groups, the concept of measuring lengths, balancing of weights and capacity using local units. 3. Use same or different sex to compare their heights and weights; add or subtract their weight and heights in two separate sets. 4. Use tape line and scale to measure and compare the heights and weights of boys and girls in the class.	Primary Text: Elementary Mathematics for Liberia Book 2 Cut out an inch, foot, card, yard stick, strings ❖ Bottles of sizes found in the localities, quarts, containers of different sizes ❖ Clock of varying sizes ❖ Small sand bag, scale, graduated bottles, etc. ❖ Tapeline and scales ❖ Textbooks **Links:** www.funbrain.com www.mathblaster.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving • Digital skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research - Quiz - Test

			5. Use paper clocks or watches to tell time and describing the property of clock. 6. Identify units of Liberian currency.	www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	- Exams

GRADE: 2
PERIOD: VI
TOPIC: 1. ORDINAL NUMBERS
2. GEOMETRY

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: 1. Distinguish the difference between ordinal numbers and cardinal numbers. 2. Recognize the shapes of a square, rectangle, triangle and a circle.	Upon completion of this unit, learners will be able to: 1. Demonstrate or use games to identify position (ordinals). 2. Identify and give simple properties of line segment, square, rectangle, triangle circles and quadrilaterals (Geometry).	1. Ordinal numbers 1st, 2nd, 3rd, 4th, 5th, 6th, etc. 2. Simple properties of line segments, 3. Circular shapes 4. Triangular and rectangular shapes	**Inclusive and differentiate Learning**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: ❖ Explain the meaning of ordinal numbers. (An example of ordinal number should consider the position on and not the value of the number like cardinal number) ❖ Form a line comprising of 10 learners and let them tell each other where do they stand in the line	Primary Text: Elementary Mathematics for Liberia Book 2 ❖ Self-explanation ordinal wall chart ❖ Wall chart with geometric shapes including square, rectangles, triangle, circles and quadrilaterals ❖ Prescribe textbooks **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving • Digital Skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research - Quiz

			❖ Tell them that ordinal numbers is the position one stands in a line, such as 1st, 2nd, 3rd, 4th, 5th, 6th, etc. ❖ Discuss simple properties of line segments ❖ Identify circular, triangular, and rectangular shapes	www.mathgametime. com www.splashmath.com www.mathplayground. com	- Test - Exams

GRADE: 3
PERIOD: I
UNIT I
TOPIC: REVIEW OF OPERATIONS

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS / RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: 1. Demonstrate their understanding in performing the following operations: addition, subtraction, and multiplication. 2. Compare things in the environment using their understanding of fraction. 3. Relate geometric shapes and patterns to designs in the community.	Upon completion of this topic, learners will be able to: 1. Add one and two digit numerals. 2. Subtract one and two digit numerals. 3. subtract two digit numerals using regrouping 4. Add two digit numerals. 5. Multiply one and two digit numerals. 6. Identify symbols such as > < or =. 7. Name parts of a whole.	▪ Addition ▪ Subtraction ▪ Multiplication ▪ Fractions ▪ Geometry	**Inclusive and differentiate Learning**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: • Add one or two digit numerals • Work in smaller groups to construct two digit number problems and add • subtract one or two digit numerals • work in smaller groups to construct two digit number problems and subtract	Primary Text: Elementary Mathematics for Liberia Book 3 Counter, rocks, sticks and cut paper Use other local material to teach **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving • Digital Skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research - Quiz

			• Work together and shade fractional parts of a circle (1/2; 1/3; ¼ etc) • Identify and describe geometry figures • Identify mathematical symbols $(> , < , =)$		- Test - Exams

GRADE: 3
PERIOD: I
UNIT II
TOPIC: SETS AND NUMBERS

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIE/ ASSESSMENTS
Learners are able to : 1. Identify the properties of sets and subsets using the population data of specific reference to family members. 2. Apply the concept of subsets to group family into smaller groups.	Upon the completion of this topic, learners will be able to: 1. Identify the properties of sets and subsets using population data with specific reference to family members. 2. Identify disjoints sets, union of sets as they relate to addition. 3. Compare and order fractions.	1. Sets and properties 2. Using the equality and inequality symbols 3. Union and intersection of sets 4. Sub-sets 5. Fractions	**Inclusive and differentiate Learning**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: 1. Form two sets of boys of different or same sizes. 2. Form two sets of girls of different or the same sizes. 3. Form two sets of girls and boys of different or same sizes. 4. Form two sets of families of different or same sizes. 5. Compare the number of learners in two more sets	Primary Text: Elementary Mathematics for Liberia Book 3 Rocks, sticks, Counter, Flash cards, chart etc. Elementary mathematic for Liberia revised edition book 2,unit-1 Poster sheets reflecting the properties of sets. **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving • Digital Skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research - Quiz

			using the symbol <, > or = to show their relationship. 6. Combine elements of two sets to form a new set showing union. 7. Determine which one of the two sets do not have common elements showing disjoint sets. 8. Determine which two sets show common elements (intersection). 9. Determine which one of the sets is a big set (has all elements) of the other sets showing the universal set.	www.splashmath.com www.mathplayground.com	- Test - Exams

GRADE: 3
PERIOD: II
TOPIC: NUMERATION

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS / RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: 1. Demonstrate their understanding and skills of reading and writing numbers up to 1000. 2. Demonstrate their higher understanding of, the place value of number and have appreciation for monetary value especially Liberian Dollar. 3. Exhibit their knowledge by comparing things base on their sizes.	Upon completion of this topic, learners will: 1. Read numerals up to 1000. 2. Write numerals up to 1000. 3. Recognize and write place value for given numerals (ones, tens, hundreds and thousands). 4. Write three digit numerals to expanded notation. 5. Compare and order unit fraction such as ½, 1/3 , 1/4, etc.	▪ Whole number up to 1000 ▪ Place value (ones, tens, hundreds, and thousands) ▪ Expanded notation ▪ Fraction in order ½, 1/3, ¼, etc.	**Inclusive and differentiate Learning**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: ❖ Read and write (in pairs of two)numbers up to 1000 and report to the class ❖ Identify and write the place values in terms of ones, tens, hundreds and thousands and report to the class ❖ Use three or four digit numerals to show expanded notation	Primary Text: Elementary Mathematics for Liberia Book 3 Rocks, stone counter, place value chart, place value strips Chart showing fractional parts of a whole. **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving • Digital Skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research - Quiz

			❖ Compare and order units of fractions such as ½, 1/3, 1/4, 1/6, etc.		- Test - Exams

GRADE: 3
PERIOD: III
UNIT I
TOPIC: OPERATION OF WHOLE NUMBERS

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS

Learners are able to:
 	
1. Apply their computational skills to solve addition, subtraction, multiplication, and division in Real life situation.
 	
2. Translate mathematical sentences in daily activities.
	Upon completion of this unit, learners will be able to:
	
	1. Demonstrate the basic combination of additions, subtraction, division and multiplication in solving whole number problems.
	
	2. Solve simple open sentence problems with one variable.
		▪ Addition and Subtraction of whole numbers
		
		▪ Simple open sentence problems
		
		▪ Addition and subtraction of whole number with 1-4 digit number
		
		▪ Multiplication of 2-4digit numbers by 1-2 digit whole numbers
		
		▪ Division of one to three digit whole number by one to two digit whole numbers
			Inclusive and differentiate Learning:
			Individual seat work or group work in mixed groups, according to abilities, gender and learning styles.
			
			Guide learners to:
			
			❖ Add 3 or more digit numbers with renaming as ones, tens and hundreds
			
			❖ Subtract 3 digit numbers with renaming
			
			  ❖ Solve subtraction, addition, multiplication, and division words problems
			
			  ❖ Divide and add numbers to find the
				Primary Text: Elementary Mathematics for Liberia Book 3
				
				1. Use any local materials that will make the teaching/learning effective.
				
				2. Teacher-made materials
				
				Links:
				
				www.funbrain.com
				
				www.mathblaster.com
				
				www.khanacademy.com
				
				www.mathgametime.com
				
				www.splashmath.com
				
				www.mathplayground.com
					EXPECTED COMPETENCIES:
					• **A**nalytical skills
					• Problem-solving
					• Digital Skills
					
					ASSESSMENT STRATEGIES:
					Can be used to check competences. Select relevant options:
					
					- Attendances
					
					- Oral questions and Answers
					
					- Class Assignment and Participation
					
					- Observation
					
					- Assignments
					
					- Research

			missing number with various symbols and number facts		- Quiz - Test - Exams

GRADE: 3
PERIOD: III
UNIT II
TOPIC: STRUCTURE AND PROPERTIES OF NUMBERS

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: 1. Apply commutative and associate properties to real life situation in the arrangement of things. 2. Recognize the Properties of zero as identity element of addition and one as identity element of multiplication.	Upon completion of this topic, leaders will: 1. Apply the Commutative property of addition and multiplication. 2. Apply the Commutative property of addition and multiplication. 3. Distributive property of multiplication over addition and subtraction. 4. One as the identity element of multiplication. 5. Perform multiplication with factors less than 100.	▪Commutative and Associative properties ▪Properties of zero and one ▪Closure property ▪Multiplication with factor less than 100.	**<u>Inclusive and differentiate Learning</u>**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: ❖ State the commutative and associative properties of addition and multiplication ❖ Apply the commutative and associative properties of addition and multiplication ❖ State the distributive property of multiplication over addition and subtraction	Primary Text: Elementary Mathematics for Liberia Book 3 ❖ Stick, stones, oranges, ❖ pawpaw ❖ Use local material to best explain the activities. ❖ Prescribed textbook ❖ Supplementary Textbooks **Links:** www.funbrain.com www.mathblaster.com www.khanacademy. com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving • Digital Skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research - Quiz

			❖ Apply the distributive property of multiplication over addition and subtraction	www.mathgametime. com www.splashmath.com www.mathplayground.com	- Test - Exams
			❖ Demonstrate the property of zero and one using addition and multiplication.		
			❖ Demonstrate the closure property for addition and multiplication.		
			❖ Use whole numbers in addition and multiplication(with factor less than 100)		

GRADE: 3
PERIOD: IV
TOPIC: FRACTIONS

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: ❖ Demonstrate and appreciate fractional parts of whole numbers in real life ❖ Distinguish the monetary value of currency base on the denomination	Upon completion of this topic, learners will able to: 1. Identify parts of a whole and its shaded parts. 2. Identify and count the divided parts. 3. Name each fractional part. 4. Change a given fraction to equivalent ones. 5. Solve addition of fractions. 6. Multiply fraction by whole numbers showing the two parts (numerators and denominators). 7. Use >, < or = to have sentence true.	▪Fraction ▪Definition of fraction ▪Comparison of fraction ▪Equivalent fractions ▪Addition of from fraction ▪Mixed fraction ▪Subtraction of like fraction ▪Multiplication of a whole number by a fraction.	**Inclusive and differentiate Learning**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: ❖ Display a poster (or draw on the chalk board), showing pictures wholes, halves, thirds, or fourths ❖ Ask learners to identify halves, thirds, or fourths $\dfrac{1}{2}$ $\dfrac{1}{3}$ $\dfrac{1}{4}$ ❖ Divide a rectangle into 4 parts and shade one-fourth showing the shaded part of a whole ❖ Name the fractional parts of the rectangle above after dividing it into 4 parts	Primary Text: Elementary Mathematics for Liberia Book 3 ❖ Rulers, geometric set, orange, paw paw, and other local materials. ❖ Prescribed textbook ❖ Supplementary textbooks **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving • Digital Skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research

			❖ Use number line to show fractions ❖ Do problems on fraction as classwork which will be done as group work for them to add ❖ Using symbols to make sentence true ❖ Write each of the first ten counting numbers on a piece of paper ❖ Line up in twos, threes, or fours with the smallest number on the left, followed by the next, and so on, the largest. For example, pupils with 4, 2. 5, and 7 will line up so that : $2<4<5<7$ ❖ Write the pairs of numbers on the chalk board as follows: ___is less than ____ or ____ < ____. ___is equal to ____ or ____ = ____. ___is greater than ____ ____ > ____.	www.splashmath.com www.mathplayground.com	- Quiz - Test - Exams

GRADE: 3
PERIOD: V
TOPIC: MEASUREMENT

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: 1. Distinguish English system from metric system and do simple calculations. 2. Demonstrate skills of addition, subtraction, multiplication, and division when dealing with money.	Upon completion of this topic, learners will be able to: 1. Recognize and use the standard units of measurement in English and the Metric systems; such as capacity, weight, and linear measurement. 2. Measure the length of objects. 3. Compare height with bar graph. 4. Compare and calculate the perimeter, areas, volume of an object. 5. Tell time, add and subtract unit of time.	▪ Measurements length, capacity, weight and height in English and metric system ▪ Unit of time, Unit of money. ▪ Basic operations on volume, weight, areas and parameters.	**Inclusive and differentiate Learning:** Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: ❖ Measure length, capacity, weight, height and volume in metric and English systems ❖ Use the clock to tell times using minute and hour hands ❖ Work in groups to solve word problems involving Liberian money ❖ Use the basic operations concepts to measure volume, weight, areas, and perimeter	Primary Text: Elementary Mathematics for Liberia Book 3 Cup, pint, quart, gallon, ounce, hundred, weight, inch, foot, yard, Liberian banknotes and coins Clock or clock drawn on postal sheet or chalk board. Prescribed textbook and supplementary books. **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving • Digital Skills **ASSESSMENT STRATEGIES:** Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research

				www.splashmath.com	- Quiz
	6. Add, subtract, multiply, and divide unit of money.				- Test
				www.mathplayground. com	- Exams
	7. Add, subtract, multiply, and divide unit of volume and weight in English and Metric system.				

GRADE: 3
PERIOD: VI
TOPIC: GEOMETRY

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS

Learners are able to:
 	
(1) Identify figures in the design of structures (bridges, houses, etc.).
 	
(2) Use population data to read and interpret bar graph, line graph, pie chart, mean, mode, medium and average.
	Upon completion of this topic, learners will be able to:
	
	• Classify simple geometric figures as line segments, rays, lines, square, cone, right angle, rectangles, triangles, and vertex
	
	• Identify various types of angles
	
	• Categorize and read geometric figures
		Measurement of geometric figures
		
		Identification of geometric figures
		
		Reading and interpreting figures from charts and graphs.
		
		Types of angles.
			Inclusive and differentiate Learning:
			Individual seat work or group work in mixed groups, according to abilities, gender and learning styles.
			
			Guide learners to:
			1. Work in groups using the ruler to draw and measure line segments, rays, lines and use protractor to draw and measure angles.
			
			2. Read and interpret the following from bar graph, line graph, pie chart: mode, mean, medium and average.
			
			3. Use the given population data to construct a:
			  a) Frequency table,
			  b) Bar graph,
			  c) Line graph,
			  d) Circle graph (pie chart).
				Primary Text: Elementary Mathematics for Liberia Book 3
				
				Geometry set
				Visual aids
				Geometry set for black demonstration
				Prescribed textbook and supplementary books;
				Poster sheet showing the population data,
				yard sticks, poster sheets and colorings
				
				Links:
				
				www.funbrain.com
				
				www.mathblaster.com
				
				www.khanacademy.com
				
				www.mathgametime.com
				
				www.splashmath.com
					EXPECTED COMPETENCIES:
					• **A**nalytical skills
					• Problem-solving
					• Digital Skills
					
					ASSESSMENT STRATEGIES:
					Can be used to check competences. Select relevant options:
					
					- Attendances
					
					- Oral questions and Answers
					
					- Class Assignment and Participation
					
					- Observation
					
					- Assignments
					
					- Research
					
					- Quiz

			4. Find the mean, mode and median of the data.	www.mathplayground.com	- Test
					- Exams
			5. Draw and discuss characteristics of the following geometric figures such as: cube, sphere, rhombus, cylinder, cone, pyramid, trapezoids, prism, rectangle, and solid.		
			6. Identify and draw angles.		

GRADE: 4
PERIOD: I

TOPICS: NUMERATION, ADDITION AND SUBTRACTION

OUT COMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: 1. Use population data of births and death to add and subtract whole numbers. 2. Apply computation skills of addition and subtraction to real life situation.	Upon completion of this topic, the learners will: • Read and write whole numbers up to hundred thousand • Compare and order whole numbers to hundred thousand • Round whole numbers up to thousand • Add and subtract whole numbers using population data on births, deaths, and migration	Place value to hundred thousand Comparing and Ordering whole number Round whole number to thousand Addition of whole numbers using population data Subtraction of whole numbers using population data Solution of word problems	**Inclusive and differentiate Learning**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: 1. Read and write whole numbers up to hundred thousand. 2. Compare and Order whole numbers up to hundred thousand. 3. Add two or more (births and deaths) from the pollution data. 4. Subtract two or more components of (births and deaths) from the population data.	Primary Text: Elementary Mathematics for Liberia Book 4 Place value chart Place value strips Life skills POPFLE Resource book Poster sheet showing population data, **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • **Analytical skills** • Problem-solving • Digital Skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research

					- Quiz
					- Test
					- Exams

GRADE: 4
PERIOD: II
TOPIC: MULTIPLICATION AND DIVISION OF WHOLE NUMBERS

OUT COMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learner will be able to: 1. Apply computational skills about multiplication and division to read life situations. 2. Keep records and distribute items. 3. Analyze basic data for decision-making.	Upon completion of this topic, the learners will: 1. Identify multiplication facts and properties. 2. Multiply multiples of 10's, 100's, and 1000's. 3. Multiply 2, 3, or 4 digits by 1-digit. 4. Divide 2, 3, or 4-digit numbers by 1-digit divisor. 5. Divide whole numbers with zero in the quotient.	▪ Multiplication facts and properties ▪ Multiply multiples of 10's, 100's, 1000,s ▪ Multiply 2, 3, 4 digit numbers by 1-digit numbers ▪ Dividing multiples of ten by 1-digit numbers ▪ Divide whole numbers with zeros in the quotient	<u>**Inclusive and differentiate Learning**</u>: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: - Use flash cards, doubles, or graph paper for multiplication facts and properties - Use graph paper to show 4 by 26 rectangle to show multiplication concepts of 2, 3, or 4 digits numerals	Primary Text: Elementary Mathematics for Liberia Book 4 Flash cards with basic multiplication Facts Graph paper Base 10 counters/abacus **Links**: www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving • Digital Skills **ASSESSMENT** <u>**STRATEGIES**</u>: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research

		6. Solve problem involving division.		- Use base 10 counters abacus to illustrate division - Multiply multiples of 10's, 100's, 1000s - Multiply 2, 3, or 4 Digits by 1-Digit - Divide 2, 3, or 4-Digit numbers by 1-Digit Divisor - Divide whole numbers with zero in the quotient - Solve problem involving division		- Quiz - Test - Exams

GRADE: 4
PERIOD: III
TOPICS: NUMBER THEORY AND FRACTION

OUT COMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS /RESOURCES	COMPETENCIES/ ASSESSMENTS
Learning are able to: ❖ Understand number theory ❖ Apply fractional concepts to real life situations	Upon completion of this topic, the students will: 1. Identify even and odd numbers. 2. Identify factors and multiples. 3. Find LCM and GCF of numbers. 4. Find parts of a set. 5. Write equivalent fractions. 6. Simplify fractions. 7. Add fractions. 8. Subtract fractions.	▪ Even and Odd numbers ▪ Factors and Multiples ▪ LCM common multiples ▪ Greatest common factor ▪ Parts of a set ▪ Equivalent fraction ▪ Simplifying fractions ▪ Adding fractions ▪ Subtracting fractions	**<u>Inclusive and differentiate Learning</u>:** Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: 1. Explore and write even and odd numbers as sets using number chart. 2. Determine the prime factors of a number. 3. find factors and multiples of a Given number 4. List multiples of a set of numbers and sort out common factor.	Primary Text: Elementary Mathematics for Liberia Book 4 A chart of number up to 100 Paper Orange Fraction Strips Made from paper **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving • Digital Skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research

	9. Solve problems involving multi-step problems.		5. Use base 10 counters to illustrate division addition and subtraction of fractions. 6. Solve problems involving multi-step problems; (using more than one operation). 7. Simplify fractions.		- Quiz - Test - Exams

GRADE: 4
PERIOD: IV
TOPIC: MULTIPLICATION AND DIVISION OF 2-DIGITS MULTIPLIERS AND DIVISORS (DECIMALS TO HUNDREDTHS)

OUT COMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: Apply concepts and skills acquired to solve problems related to multiplication and division of 2-Digits multipliers and divisors (decimals to hundredths).	Upon completion of this topic, the learners will: 1. Multiply 2-Digits factors of multiples of 10's, 100's, and 1000's. 2. Estimate products involving 2-Digits multipliers. 3. multiply 2, 3, or 4 – Digits multipliers 4. Divide multiples of 10's, 100's, and 1000's by 2-Digit Divisors mentally. 5. Estimate quotient of 2- Digit Divisors.	▪ Multiplying multiples of 10's, 100's, 1000's ▪ Estimating products of 2-Digits multiplier ▪ Multiplying 2, 3, 4 – digits numbers ▪ Numerals by 2 –digits ▪ Estimating quotients ▪ Dividing by 2- Digit divisors ▪ Decimal numerals up to hundredths place Comparing and Ordering decimal numerals up to hundredths place	**Inclusive and differentiate Learning:** Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: • Multiply and divide whole numbers of 2-digit multipliers or divisors • Role playing as shopkeeper • Order and distribute items in multiples of 10's, 100's or 1000's	Primary Text: Elementary Mathematics for Liberia Book 4 Graph Sheets Place Value models Calculator computer Prescribed textbook and supplementary books **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • Analytical skills • Problem-solving • Digital Skills **ASSESSMENT STRATEGIES:** Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments

	6. Divide 2, 3, or 4 – Digit numbers by 2-Digit Divisors. 7. Read and write decimal numerals up to hundredths place . 8. Compare and order decimal numerals up to hundredths place.	▪ Probability of simple events (optional)	• Compare and order set of data		- Research - Quiz - Test - Exams

SEMESTER TWO

GRADE: 4
PERIOD: V
UNIT TOPICS: MEASUREMENT

OUT COMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learner are able to: 1. Apply skills of estimation in planning activities considering the length of time required. 2. Appreciate the values of skills acquired in estimating lengths, weights Capacity.	Upon completion of this topic, learners will: 1. Estimate time. 2. Find elapsed time. 3. Estimate customary units of lengths. 4. Measure lengths using customary units. 5. Estimate customary units of mass and capacity. 6. Estimate metric units of lengths, capacity and mass.	▪ Estimating time ▪ Finding elapsed time ▪ Estimating customary units of lengths ▪ Converting selected units of measure ▪ Estimating metric units of measure ▪ Converting selected metric units of measure ▪ Perimeters ▪ Finding areas of squares and rectangles	<u>**Inclusive and differentiate Learning**</u>: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Assist learners to work in groups to estimate how long an activity may last (saying the alphabet; cooking rice; length of a school day; to become a doctor) and guide learners to: ▪ Demonstrate finding elapsed time using a toy clock and by addition and subtraction (end time, start time) ▪ Estimate the length of a pen, table,	Primary Text: Elementary Mathematics for Liberia Book 4 Toy or paper Clock, rulers, meter stick, scale cups, gallons teaspoon rope, tapeline **Links**: www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving • Digital Skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research

	7. Convert subunits of lengths and weight in the metric system. 8. Perform addition and subtraction of measurement of lengths and weights. 9. Find the perimeters and areas of squares and rectangles.	▪ Finding volume	classroom, size of foot) ▪ Measure classroom objects using customary units of length ▪ Demonstrate converting metric units of weight and capacity		- Quiz - Test - Exams

GRADE: 4
PERIOD: VI
TOPIC: GEOMETRY AND STATISTICS

OUT COMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: 1. Appreciate geometry as foundation of architecture and construction (building roads, boxes, balls). 2. Use population data to read and interpret bar graph, line graph, pie chart, and mean, mode, medium and average.	Upon completion of this topic, the learners will: 1. Identify geometric figures of line, line segments, rays, interesting lines, parallel lines. 2. Identify angles by shapes as right angle, less than right angle, or greater than right angle; perpendicular lines. 3. Identify triangles, quadrilaterals or pentagon, hexagon as polygon. 4. Identify parts of a circle.	▪ Geometry concept (ideas) ▪ Angles ▪ Polygons ▪ Circle ▪ Solid figures Reading and interpreting figures from charts and graphs such as Bar graphs, line graphs, pie chart	**Inclusive and differentiate Learning:** Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Assist learners to: 1. Identify and recognize simple geometric figures. 2. Identify point, lines, rays, and line segment. 3. Sort out polygons according to sides and identify each.	Primary Text: Elementary Mathematics for Liberia Book 4 Geometric set; straight edge, cut paper computer Prescribed textbook and supplementary books Poster sheets showing bar graph, line graph and pie chart Geometry set **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving • Digital Skills **ASSESSMENT STRATEGIES:** Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research

	5. Identify solid figures – spheres, cylinder, cones, cubes, rectangular prisms. 6. Read and interpret bar graphs, line graphs, pie chart, and mode, mean, median, & average.		4. Trace and cut out a circular shape in a paper. 5. Fold the paper circle in halves to identify parts of a circle. 6. Collect data about family size and display the data on a bar graph, line graph, and pie chart. 7. Find the mode, medium, and mean using the given population data. 8. Solve word problems involving drawing of diagrams.	www.mathgametime.com www.splashmath.com www.mathplayground.com	- Quiz - Test - Exams

GRADE: 5
PERIOD: I
TOPIC: MULTIPLICATION AND DIVISION OF WHOLE NUMBERS AND DECIMALS NUMBER THEORY

OUT COMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: 1.apply their knowledge and skills of operations, of Whole numbers and decimal to real life situations. 2. Develop their understanding of number theory and fractions.	Upon completion of this topic, the learners will: 1. Identify properties of operation (commutative, associative, distributive, zero and. Identity) 2. Multiply and divide whole numbers and decimals. 3. State the divisibility rules for 1-5. 4. Identify prime and composite numbers. 5. Find GCF and LCM. 6. Write factor for parts of a set.	1. Properties of multiplication 2. Multiplying and dividing whole numbers and decimals 3. Divisibility rules 4. Prime and composite numbers 5. LCM and GCF 6. Equivalent fractions 7. Simplifying fractions	**Inclusive and differentiate Learning**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Assist learners to: ❖ Use graph paper to show multiplication properties ❖ Multiply whole numbers and decimals ❖ Divide whole numbers and decimals ❖ Help learners use the sum of Eratosthenes to identify prime and composite numbers up to 50 ❖ Guide learners to write equivalent fraction and	Primary Text: New Elementary Mathematics for Liberia Book 5 ❖ Graph paper ❖ Base 10 models ❖ Square paper **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving • Digital Skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research

	7. Find equivalent fraction. 8. Simplify fraction.		simplifying fraction by using square paper folded to show equivalent fraction	- Quiz - Test - Exams

SEMESTER ONE

GRADE: 5
PERIOD: II
TOPIC: DIFFERENT KINDS OF NUMBERS

OUT COMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Leaners are able to: Demonstrate skills in the use of different kinds of numbers and appreciate their importance in real life.	Upon completion of this topic, learners will: 1. Identify prime numbers, even and odd numbers. 2. Identify and work with square numbers. 3. Determine prime factors of numbers. 4. Identify and state rules for rounding off numbers. 5. Identify and apply estimation techniques. 6. Using arrays to solve problems.	▪ Prime factors ▪ Even and odd numbers ▪ Square numbers ▪ Solving problems using different kinds of numbers including prime factorization, rounding numbers, estimation and arrays	**<u>Inclusive and differentiate Learning</u>**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Assist learners to: ❖ Work in smaller groups ❖ Discuss and identify prime factors of numbers not more than 2-digit numbers. ❖ Multiply the following numbers 1,2,3,4,5,6,7,8,9,10, 11, 12 by themselves and find their products. ❖ Find prime factors of 2-digit numbers, round off	Primary Text: Elementary Mathematics for Liberia Book 5 Square paper **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem-solving • Digital Skills **ASSESSMENT <u>STRATEGIES</u>**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research

	7. Solve problems on estimation.		numbers to the nearest 10, 100 and 1000.		- Quiz - Test - Exams
	8. Solve problems on rounding off numbers and array numbers.		❖ Employ estimation techniques to estimate products and quotients of 2-digit numbers.		
	9. Solve problems using square roots.		❖ Use array of numbers to find the products of two numbers.		

GRADE: 5
PERIOD: III
TOPIC: ADDITION AND SUBTRACTION OF FRACTIONS AND MIXED NUMBERS

OUT COMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: 1. Apply the skills and concepts of operations of fraction to daily life situation. 2. Analysis and work fractional problems of changing fraction to decimals and vice –vasa all types.	Upon completion of the topic, learners will: 1. Add and subtract fractions and mixed numbers. 2. Multiply and divide fractions. 3. Solve word problems involving fractions. 4. Convert fractions to decimals and vice – versa. 5. Compare and order fractions.	1. Adding fractions and mixed numbers with like denominators; 2. Subtracting fractions and mixed numbers with like denominators; 3. Adding and subtracting fractions with unlike denominators; 4. Multiplying fractions and mixed numbers; 5. Dividing fractions; 6. Compare and order fractions; 7. Converting fractions to Decimal;	**Inclusive and differentiate Learning**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: ❖ Use strips to add and subtract fractions with same denominators. ❖ Make flash cards with pairs of numbers that are potential denominators. ❖ Use the flash cards number to show the LCM.	Primary Text: Elementary Mathematics for Liberia Book 5 ❖ Fraction strips ❖ Flash cards ❖ Counters ❖ Graph paper ❖ Base 10 fraction model ❖ Prescribed textbook ❖ Supplementary books **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com	**EXPECTED COMPETENCIES:** • Analytical skills • Problem-solving • Digital Skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research

		8. Solve word problems involving fractions	❖ Use counters to illustrate multiplication and division of fraction concepts.	www.mathgametime.com	- Quiz
				www.splashmath.com	- Test
				www.mathplayground.com	- Exams
			❖ Use base 10 fraction model to illustrate how fractions and decimals are related.		
			❖ Solving word problems involving operations of fractions. Example: Pastor Pewee walked $2\frac{3}{8}$ km to a village. He walked $3\frac{7}{8}$ km to the next village What was the total distance walked by the pastor? a. Add the fractions and\ Rename. b. Add the whole numbers.		

c. Add result.

$$2\dfrac{3}{8} \qquad 2\dfrac{3}{8}$$

$$5 + 1\dfrac{1}{4} = 6\dfrac{1}{4}.$$

$$3\dfrac{7}{8} \quad + \; 3\dfrac{7}{8}$$

$$3\dfrac{3+7}{8} = \dfrac{10}{8} = 1\dfrac{2}{8} = 1\dfrac{1}{4}$$

$$5 + 1\dfrac{1}{4} = 6\dfrac{1}{4}$$

Pastor Pewee walked a total distance of $6\dfrac{1}{4}$ km

SEMESTER TWO

GRADE: 5
PERIOD: IV
TOPIC: MEASUREMENT

OUT COMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: Apply their skills and concepts of measurement in the homes, clinic and industries	Upon completion of the topic, learners will: 1. Find elapsed time. 2. Estimate length, weight, capacity using selected units of measure. 3. Add and subtract customary units of measure. 4. Convert selected units of measure in the metric units (mm; cm; m; km; g; kg; ml; L). 5. Find perimeters of polygons. 6. Find areas of parallelograms and triangles.	1. Finding elapsed time 2. Estimating units of measure (English/Metric) 3. Adding Metric units of length 3. Converting Metric units finding perimeters areas, volume 4. Estimating temperature on the Fahrenheit and Centigrade scales	**Inclusive and differentiate Learning**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: ❖ Work in smaller groups. ❖ Use cut-out paper clock to find elapsed time. ❖ Estimate the lengths of various objects in the classroom by measuring them. ❖ Find perimeter and areas using graph paper. ❖ Find volume of local containers using number cubes. ❖ Estimate temperature using boiling and freezing room point, normal body and temperature as	Primary Text: Elementary Mathematics for Liberia Book 5 ❖ Rulers ❖ Meter stick Cubes ❖ Graph paper ❖ Thermometer **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem solving • Creativity and Innovations Digital skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments

	7. Find volume of prisms. 8. Estimate temperature.		benchmark to estimate temperature of different activities.	- Research - Quiz - Test - Exams

GRADE: 5
PERIOD: V
TOPIC: GEOMETRY

OUT COMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: Apply geometry skills and concepts in appreciating the designs of building, roads, chairs tables and art work.	Upon completion of this topic, learners will: 1. Define, identify, construct, and measure angles and geometric figures. 2. Classify triangles by sides and angles. 3. Classify quadrilaterals. 4. Identify congruent figures. 5. Solve multi-step problems. 6. Find circumference of a circle.	1. Geometry ideas /points 2. Lines, rays, line segments, parallel and perpendicular lines 3. Kinds of angles 4. Measuring angle 5. Classifying triangles and quadrilaterals 6. Solid figures 7. Problem solving involving multi-step	<u>**Inclusive and differentiate Learning**</u>: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: ❖ Work in smaller groups. ❖ Use rulers, compass, protractor to measure and construct angles and geometric figures. ❖ Draw different shapes of triangles and quadrilateral and classify each as a triangle, square; Rectangle, parallelogram, rhombus or trapezoid. ❖ Find the circumference of a circle using its diameter.	Primary Text: Elementary Mathematics for Liberia Book 5 Geometry set, straight edge rope, paper Protractor **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem solving • Creativity and Innovations Digital skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments

			❖ Solve problems involving 2 different operations.		- Research - Quiz - Test - Exams

GRADE: 5
PERIOD: VI
TOPIC: RATIO, PROPORTION, PERCENT, AND STATISTICS

OUT COMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: Compare two or more quantities of the same units to daily life activities; Read and make bar graph, line graph and circle graph Interpret data presented and make informed decision	Upon completion of this topic, learners will: 1. Define and write ratio and proportion. 2. Write percentage as a ratio. 3. Express two or more ratio as proportion. 4. Solve problems involving finding percent of a number 5. Read and make bar graphs, line graphs and circle graphs. 6. Find the mean of a set of data 7. Find rates.	1. Ratio and proportion 2. Rates 3. Percent and Fraction 4. Finding percent of a number Arrangement of given population data in ascending or descending order. Representing the arranged data in a frequency table. Using the arranged data to fine the mean, mode and median Constructing and Reading bar, line, pictograph and circle graph	**Inclusive and differentiate Learning**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: ❖ Write ratios and proportions; ❖ Use proportions to make simple mixture. ❖ Convert percent to decimals. ❖ Solve problems involving percent of number. ❖ Use the population data,(births, deaths, teenage pregnancy,	Primary Text: Elementary Mathematics for Liberia Book 5 Graph paper Stoppers Counters Bag **Links**: www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem solving • Creativity and Innovations Digital skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments

			HIV) data and arrange the data in descending or ascending order. ❖ Construct a frequency table using the data. ❖ Make a bar, line, and circle graphs. ❖ Find the mean, mode and medium of the data. ❖ Collect data about favorite color and display data on a bar graph. ❖ Collect different stoppers and place in a bag to predict which stopper is more likely to be picked.	- Research - Quiz - Test - Exams -Exams

GRADE: 6
PERIOD: I
UNIT I: TOPIC: SETS OF REAL NUMBERS, SYMBOLS TO DESCRIBE SETS

OUT COMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: Acquire analytical skills to solve problems of daily life situation.	Upon completion of this topic, learners will: 1. Use the power of set method to determine numbers of sets. 2. Use set builder notation to describe sets. 3. Apply skills and knowledge of intersection and union sets to find solution to daily life problem. 4. Classify rational numbers into subset of whole numbers.	▪ Sets ▪ Description of sets and examples ▪ Intersection and union of sets ▪ Sets of rational and irrational numbers ▪ Sets of points ▪ Sets of prime numbers ▪ Replacement sets ▪ Venn diagram of intersection and union relations	**Inclusive and differentiate Learning**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: Define set (real numbers) using set notation. Discuss and identify the following sets and relate them to the Venn diagrams ✓ Universal set ✓ Subset ✓ Intersection of sets ✓ Union of sets ✓ Empty and disjoint sets. Draw Venn diagram of union and intersection sets.	Primary Text: Elementary Mathematics for Liberia Book 6 Use local objects to represent sets and symbols Rocks, sticks, picture of objects **Links**: www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem solving • Creativity and Innovation • Digital skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation

	5. Perform addition, subtraction, multiplication and division of integers.		Use symbols to show membership and non-membership of sets. Read Venn diagram to identify replacement of sets. Use symbols of power of sets to determine number of subsets.		- Observation - Assignments - Research - Quiz - Test - Exams

GRADE: 6
PERIOD: II
TOPIC: NUMERATION – NUMBER BASE

OUT COMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: Apply their knowledge and skills of bases in representing issues in multiple ways and create several scenarios of an issue in real life situation in any society.	Upon completion of this topic, learner will: 1. Add and subtract numbers in base ten and five. 2. Multiply number in base ten and five.	▪ Base ten number system ▪ Change base ten to base five numerals and vice versa ▪ Add in base five ▪ Subtract in base five ▪ Multiply numbers in base ten to base five	**Inclusive and differentiate Learning**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: Count in base ten. group by five to change base ten to base five numerals and vice versa Add in base five and subtract in base five Multiply base ten and base five.	Primary Text: Elementary Mathematics for Liberia Book 6 Use sticks, rocks, stones, counters, and other local materials available to make learning effective. Textbook and supplementary books **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem solving • Creativity and Innovations • Digital skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation

				www.splashmath.com	- Observation
				www.mathplayground.com	- Assignments
					- Research
					- Quiz
					- Test
					- Exams

GRADE: 6
PERIOD: III
UNIT TOPIC: OPERATIONS

OUT COMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS /RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: 1. Apply their knowledge and skills of operation of whole numbers and decimal to real life in their environment or community. 2. Know how to round off decimal to the nearest 10th, 100th and 1000th.	Upon completion of this topic, learners will: 1. Add, subtract, multiply and divide decimal. 2. Round off decimals to the nearest tenth, hundredths and thousandths	▪ Change fractions to decimals ▪ Add and subtract decimals ▪ Add and subtract decimals from the whole numbers ▪ Multiply decimals numerals by other decimal numerals and vice versa ▪ Round off decimals to the nearest tenth, hundredth and thousandth	**Inclusive and differentiate Learning**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: Solve problems in addition and subtraction of decimal numbers. Multiply whole numbers by decimal numbers. Multiply decimal numbers by decimal numbers. Divide whole numbers by decimal numbers. Decimal numbers by decimal numbers.	Primary Text: Elementary Mathematics for Liberia Book 6 Use orange, paw- paw, sticks, rocks, counter and other local materials. **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem solving • Creativity and Innovations • Digital skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers

			Practice how round off decimal to the nearest 10th, 100th and 1000th.		- Class Assignment and Participation - Observation - Assignments - Research - Quiz - Test - Exams

GRADE: 6
PERIOD: IV
TOPIC: NUMBER THEORY
UNIT I

OUT COMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to : Use their knowledge and skills in recognizing square and square roots and also cube of whole numbers.	Upon completion of this topic, learners will: 1. Find square and square roots. 2. Find cube of whole numbers using factorization methods.	▪ Number theory ▪ Square and square roots ▪ Cubes of whole numbers using factors method ▪ LCM and GCF	**Inclusive and differentiate Learning**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: ▪ Recognize perfect square (e.g. 4, 9, 16, 25, 36, 49 etc). ▪ Find square roots (e.g. □4, □9, □16). ▪ Find cubes of whole numbers using factorization method. ▪ Find prime factor of whole number.	Primary Text: Elementary Mathematics for Liberia Book 6 Calculator Geometric set etc. **Links**: www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem solving • Creativity and Innovations • Digital skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers

			▪ Find roots using factor method.		- Class Assignment and Participation - Observation - Assignments - Research - Quiz - Test - Exams

GRADE: 6
PERIOD: IV
TOPIC: MEASUREMENT
UNIT II

OUTCOMES	OBJECTIVES	CONTENTS	ACTIVITIES	MATERIALS / RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: Apply knowledge and skills acquired to appreciate the dimensions of geometric objects and work in several units of measurement in homes and industry.	Upon completion of this topic, learners will: 1. Perform the four basic operations on measurement in both English and metric system. 2. Convert unit from one system to another. 3. Measure areas, volume, perimeter, radii, circumference, square, Rhombuses, circle rectangle, cylinder, sphere,	▪ Measurement of geometric figures ▪ Add, subtract, multiply and divide in English and metric system ▪ Conversion of unit of measurement, from English to metric, vice versa ▪ Find areas, volume, perimeter, and circumstance by measurement and using formulae. ▪ Measurement of angles.	<u>**Inclusive and differentiate Learning**</u>: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: ▪ Add, subtract, multiply, and divide unit of measurement in English and Metric systems. ▪ <u>Us</u>e formulae to calculate areas, volume, perimeter, Circumstance, and radii. ▪ Convert from one system to another.	Primary Text: Elementary Mathematics for Liberia Book 6 ▪ Geometric sets, string ▪ Calculators, Protractor ▪ Use other local materials when those above are not available **Links:** www.funbrain.com www.mathblaster.com	**EXPECTED COMPETENCIES:** **A**nalytical skills - Problem solving - Creativity and Innovations **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation

			Construct and measuring weight, triangle, acute, obtuse and reflex angles.	www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	- Observation - Assignments - Research - Quiz - Test - Exams
	and other geometries shapes. 4. Calculate those in objectives 3 by using appropriate formulae.				

GRADE: 6
PERIOD: V
TOPIC: OPERATIONS – FOUR OPERATIONS WITH FACTIONS

OUT COMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS / RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: ▪ Apply skills in forming mixtures and other products in their appropriate proportions and apportion things adequately.	Upon completion of this topic, learners will: 1. Add and subtract fractions. 2. Multiply and divide fractions.	▪ Add simple fraction of unit numeration and denomination (less than ten) ▪ Subtraction of fractions ▪ Add and subtract fractions from whole numbers and fractions ▪ Multiplication of fractions ▪ The reciprocals ▪ Divide whole numbers by fractions and vice versa	**<u>Inclusive and differentiate Learning</u>:** Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: • Add and subtract proper, improper and mixed fractions. • Multiply fraction of units with numerator and denominator less than ten • Transform division of fractions by changing the division sign to multiplication sign, and invert the divisor. • Perform the multiplication and write the product in the lowest term. • Divide whole numbers by fractions and vice versa.	Primary Text: Elementary Mathematics for Liberia Book 6 Use orange, paw- paw, sticks, rocks Other local materials and **Links:** www.funbrain.com www.mathblaster.com www.khanacademy. com www.mathgametime. com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem solving • Creativity and Innovations • Digital skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments

					- Research
					- Quiz
					- Test
					- Exams

GRADE: 5
PERIOD: V
TOPIC: GEOMETRY – GEOMETRIC FIGURES AND ANGLES
UNIT II

OUT COMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: Supply acquired geometric skills in craft work and appreciate the designs based on dimensions of things in our community and environment (e.g. houses, tables, chairs, bridges roads etc)	Upon completion of this topic, learners will: 1. Recognize and explain the concept of space as the set of all points. 2. Define, identify, construct, measure angles and geometric figures.	▪ Concept of space ▪ Measure lines and rays ▪ Construct angles and geometric figures ▪ Measure angles ▪ Polygon (triangles rectangles and square) ▪ Angles, perimeter and areas ▪ Touching and intersection circles ▪ Circumference, area of a circle ▪ Cubes - volume	**Inclusive and differentiate Learning**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: • Use ruler, compass and protractor to measure and construct angles and geometric figures of all kinds. • Measure lines, rays and angles. • Construct angles and closed geometric figures. • Measure dimensions and areas of - Triangles; - Cubes; - Circles - Quadrilateral	Primary Text: Elementary Mathematics for Liberia Book 6 Use rulers, compass, protractor to construct geometric figures - Use other local materials to evaluate students learning - Statistics of population data **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground. com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem solving • Creativity and Innovations • Digital skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation

			• Find the circumference of circle and volumes of cubes.		- Assignments - Research - Quiz - Test - Exams

GRADE: 6
PERIOD: VI
UNIT I
TOPIC: RATIO, PERCENTAGE AND PROPORTION

OUT COMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
Learners are able to: Calculate ratio, percent and proportion using some Characteristics of population data (HIV, death, birth, students enrollment and retention)	Upon completion of this topic, learners will: 1. Define and write ratio and proportion 2. Write ratio as a faction 3. Write percentage as a ratio 4. Express two or more ratio as proportion 5. Solve stated problems related to ratio and proportion	▪ Define and write ratio ▪ Write fractions as ratio ▪ Write percentage as a ratio ▪ Define proportion as an equation of two ratio ▪ Define percent Definition and explanation Terms - HIV rate - Death rate - Birth rate - Student enrollment	**<u>Inclusive and differentiate Learning</u>**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: • Define of ratio and proportion. • Change and write factions as ratio. • Define proportion as equation of two ratios • Brainstorm on the definition and concepts of the given terminologies (HIV rates, death rate, birth rate and students' enrollment). • Compare each of these components as a ratio to the entire data. • Express each component as ratio to another component.	Primary Text: Elementary Mathematics for Liberia Book 6 - Games of all types - Check-up etc - Use any local games to explain more about ratio proportion - Statistics of population data **Links:** www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem solving • Creativity and Innovations • Digital skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments

			E.g.(number of girls, number of death over number of birth). • Express two of these ratios in proportion. • Find the percentage of each component to the entire data. • Find the percentage of each component. • use the concept of percent, ratio and proportion to a real life situation (solving words problems)	www.mathplayground.com	- Research - Quiz - Test - Exams

GRADE: 6
PERIOD: VI
TOPIC: GRAPHS AND INTERPRETATION OF INFORMATION

OUT COMES	OBJECTIVES	CONTENT	ACTIVITIES	MATERIALS/ RESOURCES	COMPETENCIES/ ASSESSMENTS
LEARNERS ARE ABLE TO: Apply knowledge and skill acquired to construct and analysis statistical graphs.	Upon completion of this topic, learners will: 1. Identify elements of graphs. 2. Describe kinds of graphs.	▪ Identification of elements and kinds of graphs ▪ Define and differentiating graphs ▪ Bar graph ▪ Picture graph ▪ Line graph ▪ Circular graph	**Inclusive and differentiate Learning**: Individual seat work or group work in mixed groups, according to abilities, gender and learning styles. Guide learners to: Draw bar graph, picture graph, line graph, and circular graph. Make graph tables and chart. use different graphs to compare quantities	- Ruler, protractor - Geometric sets - Use other local materials to make teaching/learning effective Prescribed and Supplementary textbooks **Links**: www.funbrain.com www.mathblaster.com www.khanacademy.com www.mathgametime.com www.splashmath.com www.mathplayground.com	**EXPECTED COMPETENCIES:** • **A**nalytical skills • Problem solving • Creativity and Innovations • Digital skills **ASSESSMENT STRATEGIES**: Can be used to check competences. Select relevant options: - Attendances - Oral questions and Answers - Class Assignment and Participation - Observation - Assignments - Research - Quiz - Test - Exams