MESSAGE FROM THE MINISTER OF EDUCATION

I wish to extend my thanks and appreciation to ECSEL, UNESCO and all our partners for their immense contribution to this important task of revising and strengthening of the National Curriculum. Special thanks to USAID through LTTP for their funding and technical support in the harmonization or realignment of the curriculum. We extend sincere thanks and appreciation to the Bureau of Curriculum Development and Textbook Research, the National Curriculum Taskforce, and the subject specialists from various institutions for the level of professionalism that went into this exercise.

The revision and strengthening of our National Curriculum comes at a time when our nation is faced with the Herculean task or challenge of education transformation, national reconstruction, recovery and renewal in the aftermath of a devastating civil war. Hence, critical to this national challenge is the rebuilding of the education sector as Liberians can not achieve the desired socio-economic progress in the absence of a strong, vibrant and productive education and training system.

The revised national curriculum has two features which include the regular core subject areas of Mathematics, Science, Language Arts and Social Studies and emphasis is being given to the global challenge of HIV/AIDS, Peace, Citizenship, Human Rights and Environmental education. Secondly, the new curriculum is developed in line with international standards especially those practiced and enshrined in the curriculum of our sisterly Republic of Nigeria and Ghana who are also members of the West African Examinations Council (WAEC).

We wish to urge all our education partners including students, teachers, principals, proprietors of schools and members of school boards to use this curriculum in our schools to enhance quality and relevant instruction and to enable our students to be adequately prepared to take the West African Senior Secondary Certificate Examinations (WASSCE) come 2013 as envisaged by us in the education sector.

May I conclude by once again saying big thank-you to all those who contributed to make this project a success.

Hon. E. Othello Gongar
MINISTER
Grades One – Six  Mathematics

General Objectives:

To develop students Knowledge and skills in:
1. Sets and numbers;
2. Numeration;
3. Structures and properties;
4. Operation;
5. Measurement;
6. Geometry;
7. Graphing and Statistics; and
8. Probability, in order to reinforce students’ basic numeric skills.

Intended Learning Outcomes: Students will appreciate and develop interest in the computation numeric skills, graphing and probability.
**Grade One Mathematics**  
**First Marking Period**  
**First Semester**

General Objectives: To develop students’ knowledge and skills in order to acquire or reinforce basic numeric skills

Unit topic: Sets and numeration

Specific Objectives: Upon completion of this unit, students will be able to:
1. Define, sets and give examples of boys and girls in their families as sets;
2. List the number of males and females in the family;
3. Identify and recognize addition and subtraction symbols up to 10
4. Solve problems involving addition and subtraction symbols up to 10.

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| Students will:  
1. Relate numbers with objects up to 10  
2. Recognize addition and subtraction facts up to 10  
3. Accept the fact that boys and girls are both important to family. | 1. Identifying objects in a set  
2. Match sets with numerals vice versa  
3. Order and compare sets of objects to 10  
4. Making fives  
5. Making tens  
6. Other facts up to 10  
7. Set of boys and girls in a given Family  
8. Number of males and females in a family | 1. Organize several activities involving the:  
- Identification of objects as sets;  
- Matching sets with numerals vice versa;  
- Ordering and comparing sets of objects to 10;  
- Making fives, and tens;  
- Using boys and girls as sets from a given family;  
- Using of males and females in a given family as sets.  
- Identification of additions and subtractions facts up to 10. | 1. Local counters (rocks, stones)  
2. Cups, chairs  
3. Copy books  
4. Flash cards  
Grade One Mathematics  | Second Marking Period  | First Semester
---|---|---
Unit Topic: Numeration
Specific Objectives: Upon completion of the unit, students will be able to:
1. Count objects up to 20
2. Read and write numbers up to 20
3. Compare and order numbers up to 20
4. Identify additions and subtractions facts up to 20
5. Solve problems involving basic addition facts

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<tr>
<td>Students will:</td>
<td></td>
<td>Various activities on:</td>
<td>Local counters</td>
<td>Exercises involving solutions of addition and subtraction facts and ordering numbers up to 20.</td>
</tr>
<tr>
<td>1. Identify and write number up to 20</td>
<td>1. Reading and writing numbers up to 20</td>
<td>✤ Matching objects with numbers up to 20;</td>
<td>(leaves, rocks, sticks, stoppers)</td>
<td></td>
</tr>
<tr>
<td>2. Recognize basic addition and subtraction facts up to 20</td>
<td>2. Compare and order numbers up to 20</td>
<td>✤ Using marked flash cards up to 20 for reading and writing;</td>
<td>Flash cards</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Double</td>
<td>✤ Comparing and ordering numbers up to 20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Other addition facts up to 20</td>
<td>✤ Solving problems using addition and subtraction facts up to 20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Solving problem involving addition and subtraction facts up to 20</td>
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</tbody>
</table>
Grade ONE Mathematics

Third Marking Period

First Semester

Unit Topic: Place value

Specific Objectives: Upon completion of this unit, the students will be able to:

1. Read and write two-digit numbers
2. Compare and order numbers up to 10
3. Find numbers before, after, and between
4. Count by 2’s 5’s, and 10’s up to 100

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<tbody>
<tr>
<td>Students will Count and write whole numbers up to 100, and apply counting skills to recognize the amount, (goods, bottles, people)</td>
<td>1. Counting ones and tens</td>
<td>Various activities involving:</td>
<td>1. Place value to models</td>
<td>Exercises on counting and writing numbers.</td>
</tr>
<tr>
<td></td>
<td>2. Comparing and ordering numbers up to 100</td>
<td>- Counting groups of objects in ones and tens;</td>
<td>2. Bundles of stick in tens</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Reading and writing number up to 100</td>
<td>- Identification of numbers up to 100 on number chart;</td>
<td>3. Sack of stick in tens</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Numbers before after, and between</td>
<td>- Writing of numbers using the value models;</td>
<td>4. Sack of rocks in tens</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Skip counting</td>
<td>- Skip counting of numbers before, after and in between;</td>
<td>5. Number chart</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Ordinal number to 10</td>
<td>- Counting by 2s, 5s, and 10s up to 100.</td>
<td>6. Abacus counters</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7. Using of place value model</td>
<td></td>
<td></td>
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</tbody>
</table>
Grade ONE Mathematics  Fourth Marking Period  Second Semester

Topic: Adding and subtracting 2-Digits numbers

Specific Objective: Upon completion of this unit, students will be able to:
1. Add tens
2. Subtract tens
3. Add 2-digit numbers without regrouping
4. Subtract 2-digit numbers without regrouping
5. Add 2-digit numbers regrouping ones
6. Solve problems involving addition and subtraction

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</thead>
</table>
| 1. Apply addition and subtraction skills to solve real-life problems | 1. Adding multiples of ten  
2. Subtracting multiples of ten  
3. Adding 2-Digit numbers without regrouping  
4. Subtracting multiples of 10 without regrouping  
5. Regrouping ones (renaming)  
6. Subtracting 2-Digit numbers  
7. Solve problems involving addition and subtraction of 2-Digit | Organized activities on:  
- Additions and subtractions of multiple of tens;  
- Using base 10 models;  
- Counting, adding and subtracting multiple of tens mentally;  
- Regrouping ones;  
- Adding or subtracting 2-Digit numbers using trading;  
- Adding and subtracting 2-Digit numbers using place value chart | 1. Sticks, rocks, counters and other local materials  
2. Place value chart, base 10 models | Exercises involving addition, subtraction and multiplication games on multiple of tens. |
Grade ONE Mathematics  |  Fifth Marking Period  |  Second Semester

Topic: Measurement

Specific objectives: upon completion of this unit, the students will be able to:
1. Define measurement
2. Define and describe weight
3. Estimate length, weight using selected units of measure
4. Tell time for different times of the day
5. Identify Liberian Money in terms of unit value
6. Define and describe capacity (space-within/volume)
7. Measure an area using non-standard units

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</thead>
<tbody>
<tr>
<td>Students will recognize and develop interest in the concepts of measurement and its application</td>
<td>1. Ideas of length</td>
<td>Various Activities involving:</td>
<td>Rocks, rope, string, clock if available</td>
<td>Exercises on the measurement of weight, capacity and length using non-standard units.</td>
</tr>
<tr>
<td></td>
<td>2. Estimating length of objectives</td>
<td>♦ Grouping objects of varying sizes according to their lengths;</td>
<td>Money (Liberia)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Ideas of weight and capacity</td>
<td>♦ Measurement of objects using non-standard units;</td>
<td>Local materials</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Using standard units of length</td>
<td>♦ Measurement of weight, capacity and length using standard unit;</td>
<td>Sticks, Paper seal, Clock,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Telling hourly time</td>
<td>♦ The use of paper clock to tell hourly time;</td>
<td>Paper clock</td>
<td></td>
</tr>
</tbody>
</table>
Grade ONE Mathematics       Sixth Marking Period       Second Semester

Topic: 1. Geometric shapes
       2. Fractions

Specific Objectives: Upon completion of this unit, the students will be able to:
1. Sort out plane figures according to shapes
2. Identify triangles, rectangles, circles
3. Draw triangles, rectangles, circles
4. Identify halves, thirds, or fourths

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<tbody>
<tr>
<td>1. Students will differentiate shapes of geometric figures (triangles, rectangles, and circles)</td>
<td>1. Sorting shapes</td>
<td>Organize activities on:</td>
<td>1. Straight edge paper shapes of triangles rectangles, squares</td>
<td>Exercises on 3. identify halves, thirds, fourths after few days of the class activity</td>
</tr>
<tr>
<td></td>
<td>2. Concepts (Ideas) of triangles</td>
<td>▶ sorting shapes of geometric figure;</td>
<td>2. Poster sheets showing halves, thirds, fourths</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Concepts (Ideas) of rectangle</td>
<td>▶ identification and drawing shapes of triangles, rectangles and circles;</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. Concepts (Ideas) of circle</td>
<td>▶ drawing wholes, showing halves, thirds, fourths using fractional chart or number line</td>
<td></td>
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<td></td>
<td>5. Draw shapes (triangle, rectangle, circle)</td>
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<td></td>
<td>6. Identifying halves, thirds, fourths</td>
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<tr>
<td>2. Students recognize halves, thirds, fourths using fractional chart or number line</td>
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</tbody>
</table>
Grade Two Mathematics                                      First Marking Period                                         First Semester

Unit Topic:    Sets and Numbers

Specific Objectives: Upon completion of this unit. Students 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

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<td>Students will:</td>
<td></td>
<td>Initiating activities on:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. match objects with whole numbers;</td>
<td>1. Set and numbers</td>
<td>❖ Comparing sets and naming its members;</td>
<td>1. Set of different numbers</td>
<td>Exercises involving sets, number sequences, and parts of a whole.</td>
</tr>
<tr>
<td>2. form addition sentences using two or more disjoint sets;</td>
<td>2. Sets of disjoint sets</td>
<td>❖ Forming additions sentences using two or more disjoint sets;</td>
<td>2. Number chart</td>
<td></td>
</tr>
<tr>
<td>3. Master the counting of numbers by 2s, 5s, and 10s up to 100;</td>
<td>3. Number sequences</td>
<td>❖ Counting of numbers by 2s, 5s, 10s up to 100;</td>
<td>3. Greater than &gt; and less than &lt; symbols</td>
<td></td>
</tr>
<tr>
<td>4. recognize symbols of greater than (&gt;) and less than (&lt;).</td>
<td>4. Parts of a whole</td>
<td>❖ Comparing parts of a whole.</td>
<td>4. Objects</td>
<td></td>
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<td>5. Flash cards</td>
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Grade Two Mathematics  

Unit II – Topic: Numeration

Specific Objectives: Upon completion of this unit, the students will be able to:
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 number

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| Students will: | 1. Reading and writing numerals | Activities involving:
| 1. read and write numbers. | 2. Place value | - Reading and writing numeral up to 200; |
| 2. Recognize how place value is use in real life situation. | 3. Standard-digit & expanded number | - Writing digit from place value concepts of a given number; |
| | 4. Numerals | - Reading and writing fractional numbers; |
| | 5. Fractional numbers | - Expressing of three digits numerals in expanded forms or notation. |

| | | 1. Numbers chart | 2. Place value chart |
| | | 3. Shaded functional illustrations | |

Exercises involving
Reading and writing numerals individually;
Expressing three digit numerals in expanded notation.
Grade Two Mathematics  |  Third Marking Period  |  First Semester
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Unit Topic: Operation Part 1

Specific Objectives: Upon completion of this unit, the students 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, using population concept as specific example.

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</table>
| Students will solve addition and subtraction problems involving 2-digit numbers without regrouping | 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 | Designing activities covering the:  
- Additions of 3 or more two-digit numerals without regrouping;  
- Subtractions of 2-digit numerals without regrouping.  
- Additions of equality and inequality(> <, =, ) using 1 or 2-digit numerals  
- Addition and subtraction of the two sexes in a given family | 1. Numbers counter,  
2. Wall charts  
3. Abbacus | Exercises involving 2-digit numbers. |
Grade Two Mathematics  

Fourth Marking Period  

Second Semester  

Unit IV: Operation part II  

Specific Objectives: Upon completion of this unit, students will be able to:  
1. Solve addition problem using regrouping  
2. Solve subtraction problem using regrouping  
3. Multiply 1-digit numerals  

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<tr>
<td>Students will adopt skills of solving addition and subtraction involving 2-digit numbers without regrouping</td>
<td>1. Addition of 3 or more two-digit numbers without regrouping</td>
<td>Organizing activities on:</td>
<td>1. Numbers counters, bundles of sticks</td>
<td>Problem-solving involving:</td>
</tr>
<tr>
<td></td>
<td>2. Subtraction of 2-digit numerals without regrouping</td>
<td>- Additions of 3 or more two-digit numbers without regrouping;</td>
<td>2. Wall charts</td>
<td>1. Calculation of 2 and 3-digit numbers in additions and subtractions</td>
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<tr>
<td></td>
<td></td>
<td>- Subtractions of two digit numerals without regrouping</td>
<td>3. Abacus</td>
<td></td>
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<td></td>
<td></td>
<td>- Multiplication games of one-digit numerals</td>
<td></td>
<td>2. Multiplication games of one-digit numerals</td>
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</table>
Specific Objectives: Upon completion of this unit, students will be able to:
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. Use the currency in circulation

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<tr>
<td>1. Students will do measurement of objects.</td>
<td>1. weight and Capacity</td>
<td>Initiating activities around:</td>
<td>1. Cut out an inch, foot, card, yard stick, strings</td>
<td>Exercises or games involving:</td>
</tr>
<tr>
<td></td>
<td>2. Measurement of lengths(heights)</td>
<td>❖ The description of weight and capacity;</td>
<td>2. bottles of sizes found in the localities, quarts, containers of different sizes</td>
<td>5. Measurement of length, width, distance, and weight;</td>
</tr>
<tr>
<td></td>
<td>4. Time telling</td>
<td>❖ Using of paper clocks or watches to tell time and describing the property of clock;</td>
<td>4. Small sand bag, scale, graduated bottles, etc.</td>
<td>7. Calculation of Money</td>
</tr>
<tr>
<td>2. Students will tell time.</td>
<td>5. Monetary value or Currency</td>
<td>❖ Calculation of monetary value of Liberian currency</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Students will easily determine monetary value of any given Liberian bank notes</td>
<td></td>
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</table>
**Grade Two Mathematics**  

**Sixth Marking Period**  

**Second Semester**  

Unit Topic: 1. Ordinal Numbers  
2. Geometry

Specific Objectives: Upon completion of this unit, students 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)

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| Students will distinguish the difference between ordinal numbers and cardinal numbers | 1. Ordinal numbers 1st, 2nd, 3rd, 4th, 5th, 6th, etc.  
2. Simple properties of line segments,  
3. Circular shapes  
4. Triangular and rectangular shapes | Activities involving the:  
- Arrangement of ordinal numbers;  
- Simple properties of line segments;  
- Identification of circular, triangular, and rectangular shapes. | 1. Self explanation ordinal wall chart  
2. Wall chart with geometric shapes including square, rectangles, triangle, circles and quadrilaterals | 1. Differentiating Ordinal numbers from Cardinal numbers.  
2. Recognition of Geometry Figures |
Grade Three Mathematics

Unit Topic: Review of Operations

Specific Objectives: Upon completion of this unit, students 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

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<td>Students will communicate in number accurately</td>
<td>▪ Addition</td>
<td>A variety of activities involving:</td>
<td>Counter, rocks, sticks</td>
<td>Problems solving on the solutions of digits numbers.</td>
</tr>
<tr>
<td>Students will determine the value of things</td>
<td>▪ Subtraction</td>
<td>▪ additions and subtraction of one or two digit numerals;</td>
<td>and cut paper</td>
<td>Exercises on shading fractional parts and identifying geometry figures and mathematical symbols.</td>
</tr>
<tr>
<td>correctly</td>
<td>▪ Multiplication</td>
<td>▪ shading of fractional parts of a whole (1/2; 1/3; ¼ etc)</td>
<td>Use other local material</td>
<td></td>
</tr>
<tr>
<td>Students will compare things in their</td>
<td>▪ Fractions</td>
<td>▪ identifying and describing geometry figure</td>
<td>to teach</td>
<td></td>
</tr>
<tr>
<td>environment</td>
<td>▪ Geometry</td>
<td>▪ identification of mathematical symbols ($&gt;$, $&lt;$, $=$)</td>
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</tbody>
</table>
**Grade Three Mathematics**  
**First Marking Period**  
**First Semester**

Unit II Topic: Sets and numbers

Specific Objectives: upon the completion of this unit, students 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

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</table>
| 1. Students will demonstrate skills of forming sets by numbers as it relates to addition. | 1. Sets and properties  
2. Union of set  
3. Sub-sets  
4. Intersection of set.  
5. Disjoint sets  
6. Fractions | Activities involving:  
- properties of sets;  
- subsets;  
- union of sets  
- disjoint sets  
- intersection of set;  
- comparing and ordering of fractions (½, ¼, 1/3, etc.). | Rocks, sticks, Counter, Flash cards, chart etc.  
Elementary mathematics for Liberia revised edition book 2, unit-1 | Exercises or games using the property of sets; and comparing and ordering of fractions. |
Grade Three Mathematics

Unit 3: Topic: Numeration

Specific Objectives: Upon completion of this unit, students will be able to:
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 $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, etc.

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</thead>
<tbody>
<tr>
<td>1. Students will read and write numbers</td>
<td>• Whole number up to 1000&lt;br&gt;• Place value (ones, tens, hundreds, and thousands)&lt;br&gt;• Expanded notation&lt;br&gt;• Fraction in order $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, etc.</td>
<td>Organize activities involving:&lt;br&gt;❖ reading and writing numbers up to 1000;&lt;br&gt;❖ identification of place values;&lt;br&gt;❖ Using three or four digit numerals to show expanded notation;&lt;br&gt;❖ Comparing and ordering units of fractions such as $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{6}$, etc.</td>
<td>1. Rocks, stone counter, place value chart, place value strips</td>
<td>Exercises on:&lt;br&gt;1. reading and writing numbers up to 1000;&lt;br&gt;2. Chart showing fractional parts of a whole.</td>
</tr>
</tbody>
</table>
Grade Three Mathematics  

Third Marking Period  

First Semester

Unit 4: Topic Operation of whole numbers

Specified Objectives: Upon completion of this unit, students 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.

<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Contents</th>
<th>Activities involving:</th>
<th>Materials</th>
<th>Evaluation</th>
</tr>
</thead>
</table>
| 1. Students understand the skills and computation of addition, subtraction, multiplication, and division in real life situation. | ▪ 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 | ▪ Addition of 3 or more digit numbers with renaming as ones, tens and hundreds.  
 ▪ Subtraction of 3 digit numbers with renaming  
 ▪ Solving of subtraction, addition, multiplication, and division words problems  
 ▪ Dividing and adding numbers to find the missing number with various symbols and number facts. | 1. Use any local materials that will make the teaching/learning effective.  
 2. Teacher-made materials | Exercises on solving problems with 3-digits |
Grade Three Mathematics

Third Marking Period

First Semester

Unit Topic: Structure and properties of numbers

Specific Objectives: upon completion of this unit, students will be able to:

1. Apply the associative property of addition and multiplication
2. Perform multiplication with factor less than 100.

<table>
<thead>
<tr>
<th>Outcomes</th>
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<th>Activities</th>
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</tr>
</thead>
</table>
| 1. Students will apply commutative and associative properties to real life situation. | ▪ Commutative and Associative properties
▪ Properties of zero and one
▪ Closure property
▪ Multiplication with factor less than 100. | Activities involving
▪ Computation of commutative and associative properties of addition and multiplication;
▪ Demonstration of property of zero and one using multiplication;
▪ Use whole numbers in addition and multiplication (with factor less than 100) | Stick, stones, oranges, paw paw
Use local material to best explain the activities. | Problems solving showing the solutions of commutative, associative properties; and properties of zero and one. |
| 2. Students will recognize the properties of zero as identity element of addition and one as identity element of multiplication. | | | | |
Grade Three Mathematics  

**fourth Marking Period**  

**First Semester**

Unit 6 Topic: Fractions  
Specific Objectives: Upon completion of this unit, students will be 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

<table>
<thead>
<tr>
<th>Outcomes</th>
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<th>Activities</th>
<th>Materials</th>
<th>Evaluation</th>
</tr>
</thead>
</table>
| Student will appreciate fractional parts of a whole number in real life situation showing fractional parts of a whole in real life situation. | ▪ 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. | Activities:  
❖ showing the shaded part of a whole  
❖ naming fractional parts  
❖ showing fraction on the number line  
❖ solving few addition of fraction problems  
❖ using symbols to make sentence true. | Rulers, geometric set, orange, paw paw, and other local materials. | Give assignments to students to determined what they have learned or achieved the objectives. |
**Grade Three Mathematics**

**Fifth Marking Period**

**Second Semester**

Unit Topic: measurement

Specific objectives: By the end of this unit, students will be able to:

1. Recognize and use the standard unit of measurement in English and the metric system such as capacity, weight, and linear measurement.
2. Measure the length of an objects
3. Compare height with bar graph
4. Compare and calculate the parameter, areas, volume of an objects
5. Tell time, add and subtract unit of time
6. Add, Subtract, multiply, and divide unit of money
7. Add, subtract, multiply, and divide unit of volume and weight in English and Metric system.

<table>
<thead>
<tr>
<th>Outcomes</th>
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<th>Activities</th>
<th>Materials</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will distinguish English system from metric system in converting one system to another.</td>
<td>Measurements length, capacity, weight and height in English and metric system</td>
<td>Activities involving:</td>
<td>Cup, pint, quart, gallon, ounce, hundred, weight, inch, foot, yard, Liberian banknotes and coins</td>
<td>Exercises involving:</td>
</tr>
<tr>
<td>Students will use acquired skills of addition, subtraction, multiplication, and division when dealing with money.</td>
<td>Unit of time, Unit of money.</td>
<td>Measurement of length, capacity weight, height and volume in metric and English system; Telling of times using minute and hour hands; Solving of words problem involving Liberian money; Using the basic operations concepts to measure volume weight, areas, and perimeter.</td>
<td>clock or clock drawn on postal sheet or chalk board.</td>
<td>solutions of length, capacity and weight in English and metric systems; Telling of times; Calculation of money</td>
</tr>
</tbody>
</table>
Grade Three Mathematics  | Sixth Marking Period  | Second Semester  
---|---|---
Unit Topic: Geometry  
Specific Objectives: Upon completing this unit, students will be able to:
6. Identify simple geometric figures of line segments, square, cone, right angle, rectangles, triangles, and vertex.
7. Identify and draw various type of angles.

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Students will recognize the importance of the use of geometric figures in the design of structures (bridges, houses, etc.)</td>
<td>Measurement of geometric figures, Identification of geometric figures, Kind of angles.</td>
<td>Measuring of line points, line segment and angles; Identifying some geometric figures such as: Cube, Sphere, Rhombus, Cylinder, Cone, Pyramid, Trapezoids, Prism, Rectangle, and Solid. Identifying and drawing of angles.</td>
<td>Geometry set, Any appropriate local material available to make teaching learning effective, Teacher-made materials</td>
<td>Exercises involving recognition and measurement of line points, segments and angles.</td>
</tr>
</tbody>
</table>
Grade Four Mathematics  

Topics: Numeration, Addition and Subtraction

Specific Objectives: At the end of this unit, the students will be able to:
8. Read and write whole numbers up to hundred thousand
9. Compare and order whole numbers to hundred thousand
10. Round whole numbers up to thousand
11. Add and Subtract whole numbers using population data on births, deaths, and migration

<table>
<thead>
<tr>
<th>Outcomes</th>
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<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will understand place value</td>
<td>Place value to hundred thousand</td>
<td>Reading and writing whole numbers up to hundred thousand;</td>
<td>Place value chart</td>
<td>Exercises involving:</td>
</tr>
<tr>
<td>Students will apply computation skills of addition and subtraction to real life situation</td>
<td>Comparing and Ordering whole number</td>
<td>comparing and Ordering whole numbers up to hundred thousand</td>
<td>Place value strips</td>
<td>Reading and writing whole number up to hundred thousand;</td>
</tr>
<tr>
<td>Students will believe and recognize the causes of population change.</td>
<td>Round whole number to thousand</td>
<td>adding the numbers of births and deaths within a given time and interpreting the result;</td>
<td>Life skills POPFLE Resource book</td>
<td>Rounding up whole numbers</td>
</tr>
<tr>
<td></td>
<td>Adding and subtracting of whole numbers</td>
<td>adding the numbers of immigration and out-migration within a given time and interpreting the result;</td>
<td></td>
<td>Problem solving on births, deaths and migration.</td>
</tr>
<tr>
<td></td>
<td>Addition and subtraction of population data.</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Solution of word problems</td>
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</tr>
</tbody>
</table>
Grade Four Mathematics  
Second Marking Period  
First Semester

Topic: Multiplication and Division of whole numbers
Specific Objectives: At the end of this unit, the students will be able to:
1. Identify multiplication facts and properties
2. Multiply multiples of 10’s, 100’s, 1000’s
3. Multiply 2, 3, or 4 Digits by 1-Digit
4. Solve problems involving multiplication
5. Divide multiples of them by 1-Digit Divisor
6. Divide 2, 3, or 4-Digit numbers by 1-Digit Divisor
7. Divide whole numbers with zero in the quotient
8. Solve problem involving division

<table>
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<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will:</td>
<td>Multiplication facts and properties</td>
<td>Using flash cards, doubles, or graph paper for multiplication facts and properties;</td>
<td>Flash cards with basic multiplication Facts</td>
<td>Exercises involving multiplication games on concepts of 2,3,or 4 digits.</td>
</tr>
<tr>
<td>1. Apply computational skills about multiplication and division to read life situation</td>
<td>Multiply multiples of 10’s, 100’s, 1000’s</td>
<td>Using graph paper to show 4 by 26 rectangle to show multiplication concepts of 2, 3, or 4 digits numerals;</td>
<td>Graph paper</td>
<td></td>
</tr>
<tr>
<td>2. Purchase and distribute items</td>
<td>Multiply 2, 3, 4 digit by 1-digit numbers</td>
<td>Using base 10 counters abacus to illustrate division</td>
<td>Base 10 counters/abacus</td>
<td></td>
</tr>
<tr>
<td>3. Develop skills of critical thinking</td>
<td>Dividing multiples of ten by 1-digit</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Divide whole numbers with zeros in the quotient</td>
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</table>
### Grade Four Mathematics

**Topics:** Number Theory and Fraction

**Specific Objectives:** Upon completion of this unit, the students will be able to:

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
9. Solve problems involving multi-step problems

<table>
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<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will:</td>
<td>Even and Odd numbers</td>
<td>Exploring even and odd numbers on a number chart</td>
<td>A chart of number up to 100</td>
<td>Exercises involving solutions of fractions and factors and multiples.</td>
</tr>
<tr>
<td>- Understand number theory</td>
<td>Factors and Multiples</td>
<td>Finding factors and multiples of a given number</td>
<td>- Paper</td>
<td></td>
</tr>
<tr>
<td>- Apply fractional concepts to real-life situations</td>
<td>LCM common multiples</td>
<td>listing multiples of a set of numbers and sort out common</td>
<td>- Orange</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Greatest common factor</td>
<td>using base 10 counters to illustrate division</td>
<td>- Fraction</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Parts of a set</td>
<td>Adding and Subtracting fractions</td>
<td>- Strips</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Equivalent fraction</td>
<td></td>
<td>- Made from paper</td>
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<tr>
<td></td>
<td>Simplifying fractions</td>
<td></td>
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<tr>
<td></td>
<td>Adding fractions</td>
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<tr>
<td></td>
<td>Subtracting fractions</td>
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</tbody>
</table>
**Grade Four Mathematics**

**Fourth Marking Period**

**Second Semester**

Topic: Multiplication and Division of 2-Digits multipliers and Divisors (Decimals to Hundredths)

Specific Objectives: At the end of the unit, the students will be able to:

1. Multiply 2-Digits factors of multiples of 10’s, 100’s, 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, 1000’s by 2- Digit Divisors mentally
5. Estimate quotient of 2- Digit Divisors
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

<table>
<thead>
<tr>
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<th>Activities</th>
<th>Materials</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Students will understand multiplication and division of whole numbers</td>
<td>▪ Multiplying multiples of 10’s, 100’s, 1000’s</td>
<td>▪ Multiplying and dividing whole numbers of 2-digit multipliers or divisors</td>
<td>▪ Graph Sheets</td>
<td>▪ Exercises involving solutions of 2-digit multipliers and divisors;</td>
</tr>
<tr>
<td>▪ Develop concepts of decimal number</td>
<td>▪ Estimating products of 2-Digits multiplier</td>
<td>▪ Role playing a shopkeeper ordering and distributing items in multiples of 10’s, 100’s or 1000’s</td>
<td>▪ Place Value models</td>
<td>▪ Exercises on the calculation of money</td>
</tr>
<tr>
<td></td>
<td>▪ Multiplying 2, 3, 4 – digits numbers</td>
<td></td>
<td>▪ Calculator</td>
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<td></td>
<td>▪ Numerals by 2 –digits</td>
<td></td>
<td>▪ computer</td>
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<tr>
<td></td>
<td>▪ Estimating quotients</td>
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<td></td>
<td>▪ Dividing by 2- Digit divisors</td>
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<td></td>
<td>▪ Decimal numerals up to hundredths place</td>
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<td></td>
<td>▪ Comparing and ordering decimal numerals up to hundredths place</td>
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<td></td>
<td>▪ Probability of simple events (optional)</td>
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</tbody>
</table>
Grade Four Mathematics  
Fifth Marking Period  
First Semester

Unit Topics: Measurement

Specific Objectives: Upon completion of this unit, students will be able to:
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
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

<table>
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<th>Activities</th>
<th>Materials</th>
<th>Evaluation</th>
</tr>
</thead>
</table>
| Students will: | ▪ 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  
▪ Finding volume | ▪ estimating how long an activity may last (saying the alphabet; cooking rice; length of a school day; to become a doctor)  
▪ Demonstration of finding elapsed time using a toy clock and by addition and subtraction (end time, start time)  
▪ Estimating length of a pen, table classroom)  
▪ Measuring classroom objects using customary units of length  
▪ Demonstration of converting metric units of weight and capacity | ▪ Toy or paper  
▪ Clock, rulers, meter stick, scale cups, gallons  
▪ teaspoon rope, tapeline | Exercises involving estimation of time required to do a job  
Problem solving involving conversion of metric unit of measurement. |
Grade Four Mathematics

Sixth Marking Period

Second Semester

Topic: Geometry and Statistics

Specific Objectives: Upon completion of this unit, the students will be able to:

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
5. Identify solid figures – spheres, cylinder, cones, cubes, rectangular prisms
6. Read and interpret bar graphs, line graphs, pie chart, mode, mean, median, & Average

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Students will appreciate geometry as foundation of construction (building) roads, boxes, balls</td>
<td>Geometry concept( ideas)</td>
<td>Identifying and recognizing simple geometric figures; point, lines, rays; line segment; sorting out polygons according to sides and to identify each; Tracing and cutting out a circular shape in a paper, fold the paper circle in halves to identify parts of a circle Collecting data about family size and displaying the data on a bar graph solving word problems involving drawing of diagrams</td>
<td>Geometric set; straight edge, cut paper</td>
<td>Exercises involving: collection of data Recognition of simple geometric figures</td>
</tr>
<tr>
<td>Students will analyze data collected on varieties of census</td>
<td>Angles</td>
<td></td>
<td>- computer</td>
<td></td>
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<tr>
<td>Students will protect themselves against major causes of death i.e. HIV/AIDS, etc.</td>
<td>Polygons</td>
<td></td>
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<tr>
<td></td>
<td>Circle</td>
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<td>Solid figures</td>
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<tr>
<td></td>
<td>Reading</td>
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<td></td>
<td>Bar graphs</td>
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<td></td>
<td>Reading line graphs</td>
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<td>Reading pie chart</td>
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</tbody>
</table>
Grade Five Mathematics
First Marking Period
First Semester

Subject: Mathematics
Period Two
Topic: Multiplication and Division of whole numbers and Decimals number theory

Specific Objectives: At the end of the unit, the pupils will be able to:
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 ECF and LCM
6. Write factor for parts of a set
7. Find equivalent fraction
8. Simplify fraction

<table>
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<tbody>
<tr>
<td>Students will:</td>
<td>1. Properties of multiplication</td>
<td>1. Students should use graph paper to show multiplication properties</td>
<td>- Graph paper</td>
<td>1. Give seatwork to a group to solve problems such as multiplication of whole number and decimal</td>
</tr>
<tr>
<td>1. Apply their knowledge and skills of operations of whole numbers and decimal to real life situations</td>
<td>2. Multiplying and dividing whole numbers and decimals</td>
<td>2. Students multiply whole numbers and decimals</td>
<td>- Base 10 models</td>
<td>2. After group work give take home assignment not less than 5 problems</td>
</tr>
<tr>
<td>2. Develop their understanding of number theory and fractions</td>
<td>3. Divisibility rules</td>
<td>3. Let students divide whole numbers and decimals</td>
<td>- Square paper</td>
<td>3. Make sure you correct the papers to determine students strong and weak points</td>
</tr>
<tr>
<td></td>
<td>4. Prime and composite numbers</td>
<td>4. Help students use the sum of Evasthothenes to identify prime and composite numbers up to 50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. LCM and GCF</td>
<td>5. Guide students to write equivalent fraction and simplifying fraction by using square paper folded to show equivalent fraction</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>6. Equivalent fractions</td>
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<td></td>
<td>7. Simplifying fractions</td>
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</tbody>
</table>
Grade Five Mathematics  

**Second Marking Period**  

**First Semester**  

Unit Topic: Multiplication and Division of whole numbers and Decimals number theory

Specific Objectives: At the end of the unit, the students will be able to:

- Identify properties of operation (commutative, associative, distributive zero and Identity)
- Multiply and divide whole numbers and decimals
- State the divisibility rules for 1-5
- Identify prime and composite numbers
- Find ECF and LCM
- Write factor for parts of a set
- Find equivalent fraction
- Simplify fraction

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<tbody>
<tr>
<td>▪ Students will:</td>
<td>▪ Properties of multiplication</td>
<td>▪ Using graph paper to show multiplication properties</td>
<td>- Graph paper</td>
<td>Exercises involving:</td>
</tr>
<tr>
<td>▪ Apply their knowledge and skills of operations of whole numbers and decimal to real life situations</td>
<td>▪ Multiplying and dividing whole numbers and decimals</td>
<td>▪ Multiplying and dividing whole numbers and decimals</td>
<td>- Base 10 models</td>
<td>1. multiplication of whole number and decimals</td>
</tr>
<tr>
<td>▪ Develop their understanding of number theory and fractions</td>
<td>▪ Divisibility rules</td>
<td>▪ Using the sum of Evasthothenes to identify prime and composite numbers up to 50</td>
<td>- Square paper</td>
<td>2. identification of prime and composite numbers up to 50</td>
</tr>
<tr>
<td></td>
<td>▪ Prime and composite numbers</td>
<td>▪ Writing equivalent fraction and simplifying fraction by using square paper folded to show equivalent fraction</td>
<td></td>
<td>3. simplification of fractions.</td>
</tr>
<tr>
<td></td>
<td>▪ LCM and GCP</td>
<td></td>
<td></td>
<td>4. giving a buzz groups(2 persons) assignment to help the weaker students.</td>
</tr>
<tr>
<td></td>
<td>▪ Equivalent fractions</td>
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<tr>
<td></td>
<td>▪ Simplifying fractions</td>
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</tbody>
</table>
Grade Five Mathematics

First Semester

Third Marking Period

Topic: Fractions

Specific Objectives: Upon completion of the unit, the students will be able to:
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

<table>
<thead>
<tr>
<th>Out comes</th>
<th>Content</th>
<th>Activities Involving:</th>
<th>Materials</th>
<th>Evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students will apply the skills and concepts of operations of fraction</td>
<td>1. Adding fractions and mixed numbers with like denominators;</td>
<td>❖ Using of fraction strips to add and subtract fractions with like denominators;</td>
<td>- Fraction strips</td>
<td>Exercises involving the solutions of addition, subtraction, multiplication of fraction, and the conversion of fractions to decimals.</td>
</tr>
<tr>
<td>to daily life situation</td>
<td>2. Subtracting fractions and mixed numbers with like denominators;</td>
<td>❖ Making flash cards with pairs of numbers that are potential denominators;</td>
<td>- Flash cards</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Adding and subtracting fractions with unlike denominators;</td>
<td>❖ Using the flash cards number to show the LCM;</td>
<td>- Counters</td>
<td></td>
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<tr>
<td></td>
<td>4. Multiplying fractions and mixed numbers;</td>
<td>❖ Using of counters to illustrate multiplication and division fraction concepts;</td>
<td>- Graph paper</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Dividing fractions;</td>
<td>❖ Using base 10 fraction model to illustrate how fractions and decimals are related;</td>
<td>- Base 10 fraction model</td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Compare and order fractions;</td>
<td>❖ Solving word problems involving operations of fractions.</td>
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<td></td>
<td>7. Converting fractions to Decimal;</td>
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<td></td>
<td>8. Solve word problems involving fractions</td>
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</tbody>
</table>
**Grade Five Mathematics**

**Fourth Marking Period**  
**Second Semester**

**Topic: Measurement**

**Specific Objectives:** At the end of the unit, the students will be able to:

1. Find elapsed time
2. Estimate length, weight, capacity using selected units of measure
3. Adding and Subtracting customary units of measure
4. Converting selected units of measure in the metric units (mm; cm; m; km; g; kg; ml; L)
5. Finding perimeters of polygons
6. Finding areas of parallelograms and triangles
7. Finding volume of prisms
8. Estimate temperature

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<tbody>
<tr>
<td></td>
<td>Students will apply the skills and concepts of measurement in the homes clinic, industries</td>
<td>1. Finding elapsed time&lt;br&gt;2. Estimating units of measure (English/Metric)&lt;br&gt;3. Adding Metric units of length&lt;br&gt;4. Converting Metric units finding perimeters areas, volume&lt;br&gt;5. Estimating temperature on the Fahrenheit and Centigrade scales</td>
<td>Cut-out paper clock&lt;br&gt;Rulers&lt;br&gt;Meter stick&lt;br&gt;Cubes&lt;br&gt;Graph paper&lt;br&gt;Thermometer</td>
<td>Exercises on the estimation and finding of temperatures, perimeters, areas and volumes.</td>
</tr>
</tbody>
</table>
**Grade Five Mathematics**  
**Fifth Marking Period**  
**Second Semester**

**Topic:** Geometry

**Specific Objectives:** At the end of the lesson, the students will be able to:

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

<table>
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</thead>
</table>
| Students will apply geometry skills and concepts in construction of building, roads, chairs and tables | 1. Geometry ideas/points  
2. Lines, rays, line segments, parallel and perpendicular lines  
3. Kinds of angles  
4. Measuring angles  
5. Classifying triangles and quadrilaterals  
6. Solid figures  
7. Problem solving involving multi-step | Activities:  
- Using of rulers, compass, protractor to measure and construct angles and geometric figures;  
- Drawing of different shapes of triangles and quadrilateral and classifying each as a triangle, square; Rectangle, parallelogram, rhombus or trapezoid;  
- Finding of circumference of a circle using diameter;  
- Solving of problems involving 2 different operations | - Geometry set, straight edge rope, paper  
Protractor | - Daily seatwork  
- Quiz  
- Assignment |
Grade Five Mathematics | Sixth Marking Period | Second Semester

Topic: Ratio, Proportion, Percent, and Statistics
Specific Objectives: At the end of the unit, the students will be able to:
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

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<tbody>
<tr>
<td>Students will apply Ratio and proportion to daily life activities; Students will Interpret data presented on a given graph</td>
<td>1. Ratio and proportion 2. Rates 3. Percent and Fraction 4. Finding percent of a number 5. Reading bar, line, pictograph and circle graph 6. Finding mean (averages) 7. Probability</td>
<td>Activities:  ❖ Writing of ratios and proportions;  ❖ Using of proportions to make simple mixture;  ❖ Converting of percents to decimals;  ❖ Solving of problems involving percent of number;  ❖ Collecting of data about favorite color and displaying of data on a bar graph;  ❖ Finding of mean of the data they have collected  ❖ Collecting of different stoppers place in a bag and predict which stopper is more likely to be picked.</td>
<td>- Graph paper - Stoppers - Counters - Bag</td>
<td>Exercises involving:  ❖ Writing of ratio and proportions;  ❖ Conversion of percent to decimal;</td>
</tr>
</tbody>
</table>
**Grade Six Mathematics**

**First Marking Period**

**First Semester**

Unit I: Topic: Exponent in sets, symbols to describe sets

Specific Objectives: By the end of this unit one, students will be able to:
1. Use the power of set method to determine numbers of sets
2. Use set builder notation of 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
5. Perform addition, subtraction, multiplication and division of integer

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</thead>
<tbody>
<tr>
<td>• Students will apply the skills of exponents to daily life situation</td>
<td>• Sets</td>
<td>• Disjoint sets of whole numbers and integers</td>
<td>- Use local objects to represent sets and symbols</td>
<td>Exercises such as:</td>
</tr>
<tr>
<td>• Pupil will translate English sentence to mathematics sentence</td>
<td>• Description of sets and examples</td>
<td>• Draw Venn diagram of union and intersection sets</td>
<td>- Rocks, sticks, picture of objects</td>
<td>1. What is disjoint set?</td>
</tr>
<tr>
<td>• Students will apply the knowledge and skills of intersection and union sets to real life in the community</td>
<td>• Intersection and union of sets</td>
<td>• Using symbols E &amp; to membership and non-membership</td>
<td></td>
<td>2. Instructing students to draw Venn diagram showing the intersection of union set and other sets</td>
</tr>
<tr>
<td></td>
<td>• Sets of rational and irrational numbers</td>
<td>• Reading Venn diagram</td>
<td></td>
<td>3. Asking students to explain what is subsets</td>
</tr>
<tr>
<td></td>
<td>• Sets of points</td>
<td>• Identifying replacement of sets</td>
<td></td>
<td>4. Observe classroom participation and give point</td>
</tr>
<tr>
<td></td>
<td>• Sets of prime numbers</td>
<td>• Using symbols of power of sets to determine number of subsets</td>
<td></td>
<td>5. Class work, quizzes, assignment, test and exam</td>
</tr>
<tr>
<td></td>
<td>• Replacement sets</td>
<td>• Grouping by five</td>
<td></td>
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<tr>
<td></td>
<td>• Venn diagram of intersection and union relations</td>
<td>• Instruct learners to change base ten to base five numerals and vice versa</td>
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</tbody>
</table>
Grade Six Mathematics

Unit Topic: Numeration – Number Base

Specific Objectives: Upon completion of unit two, pupil will be able to:
1. Add and subtract numbers in base ten and five
2. Multiply number in base ten and five

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</table>
| 1. Students will apply their knowledge and skills of base to real life situation in any society | ▪ 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 | ▪ Students to count in base ten  
▪ Students to group by five  
▪ To change base ten to base five numerals and vice versa  
▪ To add in base five  
▪ Guide students to subtract in base five  
▪ Multiply base ten and base five | - Use sticks, rocks, stones, counters, and other local materials available to make learning effective | Exercises involve: Asking students to change base ten to base five  
▪ Evaluating their achievement through quizzes, assignment, test, etc  
▪ Observe class room participant and give point |
Grade Six Mathematics  
Third Marking Period  
First Semester

Unit Topic: Operations

Specific Objectives: At the end of unit 3, students will be able to:
1. Add, subtract, multiply and divide decimals
2. Round off decimals to the nearest tenth, hundredths and thousandths

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</table>
| Students will apply their knowledge and skills of operation of whole numbers and decimal to real life in their environment or community | 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 | solving problems in addition and subtraction of decimal numbers  
Multiplying whole numbers by decimal numbers and other decimal numbers  
Dividing whole numbers by decimal numbers and decimal numbers and decimal by another decimal numbers  
Practicing how round off decimal to the nearest 10\textsuperscript{th}, 100\textsuperscript{th} and 1000\textsuperscript{th} | Use orange, paw-paw, sticks, rocks, counter and other local materials can be used | Find out from students whether they can work square roots and cube numbers problems  
Assignment  
Class work to determine the extent to which the student have achieved the objective |
Grade Six Mathematics  

Fourth Marking Period  

Second Semester  

Unit Topic A: Number Theory  
Specific Objectives: Upon completion of this unit, students will be able to:  
1. Find square and square roots  
2. Find cube of whole numbers using factorization methods  

<table>
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</table>
| Students will use this knowledge and skills to organize and operate business and organization such as credit union, or sales in shops, etc | Number theory  
Square and square roots  
Cubes of whole numbers using factorization method  
LCM and GCF | Recognize perfect square (e.g. 4, 9, 16, 25, 36, 49 etc)  
Finding square roots (e.g. \(\sqrt{4}, \sqrt{9}, \sqrt{16}\))  
Fine cubes of whole numbers using factorization method  
Finding prime factor of whole number  
How to find roots using factor method. | Calculator  
Text books  
Geometric set etc use other local materials to solve some of the problems | Exercises involving how to work square roots and cube numbers  
Assignment  
Class work to determine the student to solve the above problems. |
Grade Six Mathematics

Fourth Marking Period

Second Semester

Unit Topic B: Measurement
Specify objectives: Upon completion of this unit, students will be able to:
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, and other geometries shapes.
4. Calculate those in objectives 3 by using appropriate formulae.

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</thead>
<tbody>
<tr>
<td>▪ Apply knowledge of size of object in solving some daily problems at home, School, hospitals, industries, and construction.</td>
<td>▪ 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 circumference by measurement and using formulae. ▪ Measurement of angles.</td>
<td>▪ adding, subtracting, multiplying, and dividing unit of measurement in English and metric system. ▪ Using of formula to calculate areas, volume, perimeter, circumference, radii ▪ converting from one system to another ▪ constructing and measuring weight, triangle, acute, obtuse and reflex angles.</td>
<td>▪ Geometric sets, string ▪ Calculators, Protractor ▪ Use other local materials when those above are not available.</td>
<td>▪ Give assignments, quizzes, or test ▪ Find out if pupil were able to carry on the task carefully. Find out whether students were able to find answers to the problem mentioned above. ▪ Discuss and give correct answer.</td>
</tr>
</tbody>
</table>
### Grade Six Mathematics
### Fifth Marking Period
### Second Semester

**Unit Topic A: Operations – Four operations with fractions**

**Specific Objectives:** Upon completion of this unit, students will be able to:

1. Add and subtract fractions
2. Multiply and divide fractions

<table>
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</thead>
<tbody>
<tr>
<td>Students will develop interest in solving problems in fractions</td>
<td>Add simple fraction of unit numeration and denomination (less than ten)</td>
<td>Adding and subtracting of proper, improper and mixed fractions</td>
<td>- Use orange, paw-paw, sticks, rocks - Other local materials</td>
<td>Class participations as it relates to adding, subtracting, multiplying and dividing fractions</td>
</tr>
<tr>
<td>Students will apply the knowledge of multiplying and dividing fractions</td>
<td>Subtraction of fractions</td>
<td>Multiplying fraction of unit.</td>
<td></td>
<td>Class work, assignment, test and exam will determine the extent to which the students have achieve the objective</td>
</tr>
<tr>
<td>Students will calculate the family sizes, income, birth rate, death rate especially those in quarter of dollars etc</td>
<td>Add and subtract fractions from whole numbers and fractions</td>
<td>Numerator and denominator less than ten</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Students will understand the method of applying the four operations with fractions</td>
<td>Multiplication of fractions</td>
<td>Fraction by changing division sign to that of multiplication, invert the division, carry out multiplication and reduce the product to the lowest term</td>
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<td></td>
<td>The reciprocals</td>
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<td>Divide whole numbers by fractions and vice versa</td>
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Grade Six Mathematics  

Fifth Marking Period  

Second Semester

Unit Topic B: Geometry – Geometric figures and angles  
Specific Objectives: By the end of this unit 8, students will be able to:
   1. Recognize and explain the concept of space as the set of all points  
   2. Define, identify, construct, measure angles and geometric figures

<table>
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</table>
| ▪ Apply acquired geometric skills in the construction of things in our community and environment (e.g. houses, tables, chairs, bridges roads etc) | ▪ 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 | ▪ Using ruler, compass and protractor to measure and construct angles and geometric figures of all kinds  
▪ measuring lines rays and angles  
▪ constructing angles and closed geometric figures  
▪ Measuring dimension and areas of:  
   - Triangles;  
   - Cubes;  
   - Circles  
   - Quadrilateral | - Use rulers, compass, protractor to construct geometric figures  
- Use other local materials to evaluate students learning | ▪ Give assignment  
▪ Ask them to identify and name the figure they have drawn  
▪ The extent to which the students have achieved the objectives of this unit will be determined by their ability to perform in quizzes, assignment, tests and exams |
Grade Six Mathematics

Sixth Marking Period

Second Semester

Unit 6: Topic: Ratio, Percentage and Proportion

Specific Objectives: Upon completion of this unit, students will be able to:

1. Define and write ratio and proportion
2. Write ratio as a fraction
3. Write percentage as a ratio
4. Express two or more ratio as proportion
5. Solve stated problems related to ratio and proportion

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<tbody>
<tr>
<td>• Recognize quantities comparison</td>
<td>• Define and write ratio</td>
<td>• Definition of ratio and proportion</td>
<td>• Games of all types</td>
<td>• Exercises such as asking students to define ratio and proportion</td>
</tr>
<tr>
<td>• Students will appreciate the application of ratio and proportion to daily life activities</td>
<td>• Write fractions as ratio</td>
<td>• Changing and writing fraction as ratio</td>
<td>• Check-up etc</td>
<td>• writing fraction as ratio in form of Quizzes, and Test</td>
</tr>
<tr>
<td>• Students will interpret data on a given graph</td>
<td>• Write percentage as a ratio</td>
<td>• Process of defining proportion as equation of two ratios</td>
<td>• Use any local games to explain more about ratio proportion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Define proportion as an equation of two ratios</td>
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Grade Six Mathematics  |  Sixth Marking Period  |  Second Semester

Unit Topic B: Graphs and interpretation of information
Specific Objectives: Upon completion of this unit, students will be able to:
1. Identify elements of graphs
2. Describe kinds of graphs

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</table>
| • Students will gain skills to compare quantity and height | • Identification of elements and kinds of graphs
• Define and differentiating graphs
• Bar graph
• Picture graph
• Line graph
• Circular graph | • Drawing of Bar graph, Picture graph, Line graph, and Circular graph.
• Making graph tables and chart
• using different graphs to compare quantities | - Ruler, protractor
- Geometric sets
- Use other local materials to make teaching/learning effective | • Give assignment
• Collect assignment papers to find out if the students correctly answered the questions given them
• Give home work, assignment, quizzes, test and exams to determine whether the objectives have been achieved |

Bibliography
3. Scott Foresman Addison Wesley, Mathematics, 2004, Grade 1 – 6, Randall I. Charles et all
The printing of the National Liberian Curriculum is provided by ECSEL - European Commission Support for Education in Liberia