

**REPUBLIC OF RWANDA**



**MINISTRY OF EDUCATION.**

**NATIONAL CURRICULUM DEVELOPMENT  
CENTRE (N C D C)  
P.O.BOX 622-KIGALI.**

**MATHEMATICS CURRICULUM FOR UPPER PRIMARY EDUCATION (P4, P5, P6)**

**Kigali, July 2005.**

## **I. INTRODUCTION**

Mathematics is one of the disciplines which give a learner logic reasoning and coherent thinking and enable him or her to follow other subjects effectively. Mathematics is also a tool of learning other disciplines at primary level (e.g. STE., Geography,.... )

## **II. GENERAL ORIENTATION**

A holistic approach for the teaching of Mathematics in primary education is highly recommended. In other words, all the branches that are supposed to be taught (arithmetic, metric system, geometry, algebra, graphics and their interpretations) cannot be separated. As such they can not appear, separately on the school timetable. The teaching of Mathematics will be so useful, to the extent that, it will expose the learner to a lot of exercises which will make them acquire the basic, simple notions/knowledge of Mathematics. Pupils will be encouraged to participate in all activities so as to get used to the principles and the language of mathematics.

## **III. GENERAL OBJECTIVES**

- 1) Apply the acquired knowledge to solving mathematics problems
- 2) Solve everyday problems that need quick application of simple mathematical principles
- 3) Exploit the acquired mathematics applications so as to use them later in the pupils' future training.

## IV. CURRICULA

### CURRICULUM: PRIMARY FOUR

SPECIFIC OBJECTIVES	CONTENTS	METHODOLOGY NOTES
<p><i>At the end of primary four, the learner should be able to:</i></p> <ol style="list-style-type: none"> <li>1) Read and write a number that is less than or equal to 100 000</li> <li>2) Break up into Units, tens, hundreds, thousands of numbers less than or equal to 100 000.</li> <li>3) Compare 2 numbers between 0 and 100 000 using the signs &lt; , &gt; and =</li> </ol>	<p><b>Chapter 1. Numeration and operations :</b></p> <p><b>A. Whole numbers</b></p> <p>-Read and write a number that is less or equal to 100 000            -Break up a number that is less or equal to 100 000 in units, tens, hundreds, thousands.</p> <p>-Comparing whole numbers between 0 and 100 000            -Descending, ascending order of numbers between 0 and 100 000</p>	<p>-Make pupils read given numbers that are less than or equal to 100 000            -Ask pupils to do exercises after the explanations of the teacher.            - To do the decomposition of a number using the multiplication table.</p> <p>-Compare numbers, two by two using the signs &lt; , &gt; and =            -Arrange them, either in the ascending, or descending order</p>

<p>4) Make additions of whole numbers, whose total sum does not exceed 100 000</p>	<p>-Addition of whole numbers whose total sum does not exceed 100 000</p>	<p>-Make operations in the multiplication table, putting the figures in their right places. -Ask pupils to complete arithmetic progressions, in the ascending or descending order, using additions or subtractions, of successive numbers, and of a constant number (reasoning)</p>
<p>5) Complete an ascending arithmetic progression</p>	<p>-Ascending arithmetic progression</p>	
<p>6) Do subtractions of whole numbers that are in between 0 and 100 000</p>	<p>-Subtraction of whole numbers between 0 and 100 000</p>	
<p>7) Complete a descending arithmetic progression</p>	<p>-Descending arithmetic progression</p>	
<p>8) Do multiplications of a number by a number of two digits or more, where the total sum does not exceed 100 000</p>	<p>-Multiplication of a number by a number of two digits</p>	<p>-For the multiplication, use the vertical position; using examples, illustrate the properties of multiplication</p>
<p>9) Do divisions of a whole number inferior to 100 000 by a number of two digits or more, the quotient being a whole number</p>	<p>-Exact division ( the remainder is 0 ) -Division where the remainder is not 0</p>	

<p>10) Do quick calculations</p> <p>11) Solve problems related to Everyday life, where the four fundamental operations are applied.</p> <p>12) Solve problems of Unequal shares :          -knowing the difference of the two shares          -One of the two shares is a multiple of the other.</p> <p><i>At the end of primary four, the learner should be able to:</i></p> <p>1. Read and write decimal numbers, 3 decimal places or more</p>	<p>-The product of a number with two digits by 10, 100, 1 000, 10 000</p> <p>- The quotient of a pair number with two figures by 2.</p> <p>-The exact division of a number with two figures, by a number with one figure</p> <p>The problems on the four fundamental operations.</p> <p>The unequal shares :          -knowing the difference of the two shares          -One of the two shares being a multiple of the other</p> <p><b>B. Decimal numbers</b></p> <p>-Reading and writing decimal numbers with 3 decimal places or more</p>	<p>-To make easy quick calculations, refer to calculation rules.</p> <p>-Using examples make the pupils solve the problems of unequal sharing.</p> <p>-Make pupils read given decimal numbers, showing clearly the whole part, and the decimal part.</p>
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<p>2. Compare a decimal number with a whole number; 2 decimal numbers using the sign &lt;, &gt; and =</p>	<p>-Comparing decimal numbers between themselves, between whole numbers and decimal numbers          -Ascending or descending order of decimal numbers</p>	<p>-Show the relationship between decimal numbers and whole numbers, the use of decimal numbers in the conversion of quantitative measurements</p> <p>-Particularly insist on the place of the coma in written decimal numbers ( the coma is replaced by a point in English systems )</p> <p>-To point to the role of zero depending on where it is situated ( especially in the decimal part )          Example : 0,45; 4,05 ; 4,50 ; compare 4,05 and 4,50</p> <p>-For one to apply the 4 operations in decimal numbers, point out the position of the coma, in the results of each operation.</p>
<p>3. Do the 4 fundamental operations on decimal numbers and whole numbers.</p>	<p>-Addition and subtraction of decimal and whole numbers          -Multiplication of a decimal number by a whole number of 2 digits or more</p> <p>Division :</p> <p>-of a whole number by a whole number of 2 digits or more, the quotient having one decimal or more          -of a decimal number by a whole number of one figure , the quotient having two 2 decimal numbers or more</p> <p>Multiplication or Division of a whole number or one decimal number by 10, 100, 1 000.</p>	

<p><i>At the end of primary four, the learner should be able to:</i></p> <ol style="list-style-type: none"> <li>1- Read and write fractions that do not go beyond a unit</li> <li>2- To show a fraction in a drawing</li> <li>3- Compare the fractions</li> <li>4- Simplify the fractions Whose numerator is made up of one digit, and the denominator made up of, two digits or more.</li> </ol>	<p><b>C. THE FRACTIONS</b></p> <p>Reading and writing fractions</p> <p>Showing a fraction in a drawing</p> <p>Comparison of fractions :</p> <ul style="list-style-type: none"> <li>-of the common denominator ( the denominator is a whole number )</li> <li>-of the same numerator</li> <li>-Increasing and decreasing order of fractions of the same denominator or the same numerator.</li> </ul> <p>Simplification of fractions whose numerator is formed by one digit and the denominator of 2 digits or more</p>	<ul style="list-style-type: none"> <li>-Introducing fraction lessons using appropriate teaching aids, should think of using the fractioning method</li> <li>-Illustrate, graphically, some fractions that are inferior to a unit.</li> <li>-Make pupils discover the rational order of fractions. Example: <math>1/2</math>; <math>1/4</math>; <math>1/8</math>; <math>1/10</math>...on stickers, or on simple objects that are familiar with the children. Example: fruits, baguettes,</li> <li>-To show the relationship between fractions and the whole numbers, the fractions and decimal numbers</li> </ul>
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<p>5. Apply four fundamental operations with the fractions and the whole numbers,</p> <p>6- Solve problems with fractions</p> <p><i>At the end of primary four, the learner should be able to:</i></p> <p>1. Recite, read and write length measurements</p> <p>2. Read a given length</p>	<p>Addition and subtraction of fractions with the same denominator.  Completing a fraction to make a unit.  Multiplication and division of a fraction by a whole number and by a fraction.</p> <p>Fractions of a whole number ( ex. : <math>\frac{2}{3}</math> of 15 )  Converting fractions in decimal numbers and vice-versa</p> <p>Problems with fractions</p> <p><b>Chapter II. METRIC SYSTEM</b></p> <p><b>A. MEASUREMENT OF LENGTH</b></p> <p>Reading, writing length measurements</p> <p>The length in meters. (m)</p>	<p>-To do varied exercises with various operations using fractions.</p> <p>-To use appropriate teaching aids, to teach the length measurements, the measurements of capacity, mass measurements, of volume, of surface and of time.</p>
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<p>3. Convert measurements of length between themselves</p> <p>4. Solve problems where there are length measurements</p> <p><i>At the end of primary four, the learner should be able to:</i></p> <p>1. Recite, read and write the measurements of capacity</p> <p>2. To convert the Measurements of capacity between themselves</p> <p>5. Solve problems using Measurements of capacity</p>	<p>Conversion of length measurements</p> <p>Mathematical problems that involve of measurement of length</p> <p><b>B. MEASUREMENTS OF CAPACITY</b></p> <p>Reading and writing the measurements of capacity</p> <p>To convert the measurements of capacity between themselves( from hl to ml)</p> <p>Problems that involve the measurements of capacity.</p>	<p>-To use the table to convert measurements</p> <p>-To show the relationship of sizes between: volume, mass, and capacity</p>
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<p><i>At the end of primary four, the learner should be able to:</i></p> <ol style="list-style-type: none"> <li>1. Recite, read and write measurements of masses</li> <li>2. Use different types Of balances in weights</li> <li>3. Convert measurement of masses, between themselves</li> <li>4. Solve problems where the measurement of masses are involved</li> </ol>	<p><b>C. MEASUREMENT OF MASS</b></p> <p>Reading, writing the measurement of masse</p> <p>Using different types of balances ( Beam, scale spring balances, weight balances ) in weights</p> <p>Multiples and sub multiples of mass unit ( from the tone (t) to the mg)</p> <p>Conversion of measurement of masses between themselves</p> <p>Problems that involve measurement of mass</p>	
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<p><i>At the end of primary four, the learner should be able to:</i></p> <ol style="list-style-type: none"> <li>1. Recite, read and write area measurement including land measurements</li> <li>2. Convert and compare the land measurements with the surface measurements.</li> <li>3. Solve problems where surface measurements and the land measurements are involved</li> </ol>	<p><b>D. SURFACE MEASUREMENT</b></p> <p>-Know the surface and the unit for the surface Reading, writing the measurements of the surface including the land measurements</p> <p>Conversion and comparison land measurements with the measurements for the surfaces</p> <p>Problems involving measurements of surface and the land measurements.</p>	
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<p><i>At the end of primary four, the learner should be able to:</i></p> <ol style="list-style-type: none"> <li>1. Read and use a calendar</li> <li>2. Read the time up to the minute</li> <li>3. Solve problems that include dates and hours</li> </ol> <p><i>At the end of primary four, the learner should be able to:</i></p> <p>Solve practical problems related to utilisation of Rwandan money in everyday life</p>	<p><b>E. THE MEASUREMENT OF TIME</b></p> <p>Reading and using the calendar</p> <p>Read the hour up to the minute</p> <p>Solving problems where dates and hours are involved.</p> <p><b>F. THE MONEY</b></p> <p>Practical problems related to utilisation of Rwandan money</p>	
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<p><i>At the end of primary four, the learner should be able to:</i></p> <p>1. Draw and identify the straight lines</p> <p>2. Recognise and the parallel straight lines, cutting lines, and the different types of angles</p>	<p><b><u>Chapter III:</u></b></p> <p><b><u>GEOMETRY</u></b></p> <p><b>A. The straight Lines</b></p> <p>The vertical, oblique and horizontal straight lines</p> <p>-The parallel straight lines  -The cutting straight lines:      -The perpendicular straight lines      -The non perpendicular straight lines  -The different types of angles: acute angle, obtuse, right angle, straight/right angle, and flat angles.</p>	<p>-To make pupils discover, the different positions of straight lines, and the different types of angles</p> <p>-To show to the pupils the common apparatus in geometry: the graduated ruler, the square, the compass, and protractors.</p>
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<p><i>At the end of primary four, the learner should be able to:</i></p> <p>1. Recognise, compare, and draw the different geometrical figures, using their properties</p>	<p><b>B. The geometrical figures</b></p> <p>The geometrical figures and their properties:</p> <ul style="list-style-type: none"> <li>-Quadrilateral: <ul style="list-style-type: none"> <li>-square</li> <li>-rectangular</li> <li>-rhombus</li> <li>-parallelogram</li> </ul> </li> <li>Trapezium { <ul style="list-style-type: none"> <li>Isosceles</li> <li>Rectangle</li> <li>Scalene</li> </ul> </li> <li>Triangle { <ul style="list-style-type: none"> <li>Equilateral</li> <li>Isosceles</li> <li>Rectangle</li> <li>Scalene</li> </ul> </li> <li>-Circle</li> </ul> <p>-Number of angles, number of parallel sides, equal sides, radius, and height.</p>	<ul style="list-style-type: none"> <li>-Proceed to observing and analysing the geometrical figures cut in cartons</li> <li>-To train pupils to construct themselves, the geometrical figure, in cartons, or in other materials</li> </ul>
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<p>2. Calculate the parameter and the area of a given figure.</p>	<p>Parameter and area of a square, a rectangle, a parallelogram, a rhombus, a trapezium, and a circle.</p>	<p>-To invite the pupils to calculate by themselves, their parameters, and areas. (of the different geometrical figures) - By choosing simple problems, make pupils apply the formula, that they have studied, to calculate the parameter, and the area of certain given figures: a square, a rectangle, a parallelogram, a rhombus, a trapezium, and a circle.</p>
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## DISTRIBUTION: CLASS FOUR PRIMARY SCHOOL

### FOURTH YEAR: 1<sup>ST</sup> TERM

<i>Week</i>	<i>NUMERATION AND OPERATION</i>	<i>METRIC SYSTEM</i>	<i>GEOMETRY</i>
1	Reminders	Reminders	Reminders
2	<p><b>A. <u>The whole numbers</u></b></p> <p>Reading, writing and decomposition of a number, inferior or equal to 100 000</p>	<p><b>A. <u>Measurement of length</u></b></p> <p>-reading and writing the measurements of length, the length in (m)</p>	<p><b>A. <u>Straight lines and Angles</u></b></p> <p>-the straight vertical lines</p>
3	<p>-comparing whole numbers between 0 and 100 000</p> <p>-increasing or decreasing order</p>	- conversion of measurements of length	-the oblique straight lines
4	<p>- addition of whole numbers whose total sum does not make more than 100 000</p> <p>-increasing arithmetic progression</p>	-conversion of measurements of length	-the horizontal straight lines
5	<p>-Subs traction of whole numbers between 0 and 100 000</p> <p>-decreasing arithmetic progression</p>	-problems with length measurements	the parallel straight lines
6	-Multiplication of one number with another number, that has got two digits or more	-problems with length measurements	The parallel straight lines



7	-exact division (the remaining is 0) -the division where the remaining is not 0	<b>B. <u>Measurement of capacity</u></b>  -read and write measurements of capacity	-the cutting straight lines: -the non perpendicular straight lines
8	-quick arithmetic	-conversion of measurements of capacity	the cutting straight lines: -the perpendicular straight lines
9	-problems with the four fundamental operations	-problems of the measurements of capacity	-the different types of angles
10	-revision	-revision	Revision
11	-exams	-exams	Exams

**FOURTH YEAR: 2<sup>ND</sup> TERM**

<b>Week</b>	<b>NUMERATION AND OPERATION</b>	<b>METRIC SYSTEM</b>	<b>GEOMETRY</b>
1	Reminders	Reminders	Reminders
2	<b>B. The decimal numbers</b> -The decimal numbers -Read and write the decimal numbers with 3 decimals	<b>C. Mass measurements</b> -Read and write the mass measurements -different types of balances	<b>B. The geometric figures</b> Square: properties and construction of a square
3	- Comparison of decimal numbers - Ascending or descending order of numbers	- weighing and comparison of masses	Square: perimeter, surface and exercises
4	Addition and subtraction	-conversion of mass measurements	Rectangle: properties and construction
5	Addition and subtraction	-problems	Rectangle: parameter, surface and Exercises
6	Multiplication	_____	Parallelogram: Properties, construction, parameter, surface and exercises
7	Division of decimals by a whole number	<b>D. Area measurements</b> -Reading and writing area measurements	Rhombus: properties and construction
8	Division of decimals by a whole number with 2 digits	Conversion of measurements of area and land measurement	Rhombus: parameters, area and Exercises
9	Multiplication or division by 10,	-problems with area measurements and the	Trapezium: properties and

	100, 1000	land measurement.	construction
10	Multiplication and division	-problems	Trapezium: parameters, area and exercises
11	Problems with unequal sharing	problems	Exercises + problems
12	Revision	Revision	Revision
13	Exams	Exams	Exams

**FOURTH YEAR: 3<sup>RD</sup> TERM**

<i>Week</i>	<i>NUMERATION and OPERATION</i>	<i>METRIC SYSTEM</i>	<i>GEOMETRY</i>
1	Reminders	Reminders	Reminders
2	<p><b><u>C. The fractions</u></b></p> <p>-Reading, writing and representation of fractions</p>	<p><b><u>E. Measurements of time</u></b></p> <p>-reading and the use of the calendars</p>	<p><b><u>C. The geometric figures</u></b></p> <p>Triangle: properties and construction</p>
3	Comparison of fractions	-reading the time, up to the minutes	Triangle: different types of triangles
4	Simplifying the fractions	-reading the time, up to the minutes	Triangle: perimeter and area
5	Addition and subtraction of fractions Complement of a fraction	- solve problems with dates and time	Problems with the triangle
6	Addition and subtraction of fractions Complement of a fraction	-solve problems with dates, hours and minutes	Circle: properties and construction
7	Multiplication and division of a fraction with a whole number	-solve problems with dates, hours and minutes	Circle: circumference

8	Multiplication and division of fractions between themselves	-Problems with dates, hours and minutes	Circle: area
9	Conversion of fractions into decimal numbers and vice-versa	<b>F .Money</b> -Problems with manipulation of Rwandan money	Exercises + Problems
10	Problems with fractions	Idem	Problems
11	Revision	Revision	Revision
12	Exams	Exams	Exams

## CURRICULUM: 5<sup>TH</sup> YEAR OF PRIMARY EDUCATION

SPECIFIC OBJECTIVES	CONTENT	METHODOLOGICAL NOTES
<p><i>At the end of primary five, the learner should be able to:</i></p> <p>1. Read and write numbers that are not more than 1000 000</p> <p>2. Compare the numbers that do not exceed 1000 000</p>	<p><b>Chapter1. NUMERATION AND OPERATIONS</b></p> <p><b>A. The whole numbers</b></p> <p>- Order and classification of numbers, not exceeding 1000 000</p> <p>-Comparison of the numbers that do exceed 1000 000, using the signs &lt;, &gt; and =</p> <p>- ascending and descending order of numbers, that do not exceed 1000 000</p>	<p>-To remind the pupils, the order, the classification, and the comparison of numbers with 6 or more digits</p> <p>-To train pupils to write and read a number that does not exceed 1 000 000, using the numeration table</p> <p>-Starting from a typical exercise, invite the pupils to compare numbers that are not more 1 000 000</p>

<p>3. Do the four operations, on the whole numbers, where the results do not exceed 1000 000</p>	<ul style="list-style-type: none"> <li>-Addition and subtraction</li> <li>-Arithmetic progression</li> <li>- Multiplication with whole numbers</li> <li>-The properties of addition and multiplication: <ul style="list-style-type: none"> <li>-commutative</li> <li>-associative</li> <li>-distributive property of the multiplication in relation to addition and subtraction</li> </ul> </li> <li>- exact division ( the remainder is 0 )</li> </ul> <p>Rules for first calculation</p> <p>The product of a number with 3 digits or more with 5, 9, 10, 11, 19, 20, 25, 49, 50, 99, 100</p> <p>The complement of a number with 3 figures so as to end up with a number that ends with 0 and does not exceed 1000</p> <p>The quotient of an even number with 3 digits by 2</p> <p>To cast out nines</p> <p>The characteristics of divisibility by 2, 3, 4, 5, 8, 9, 11, 25, 125</p>	<ul style="list-style-type: none"> <li>-Starting with typical exercises, to train pupils to apply the 4 fundamental operations</li> <li>-To give examples, in introducing the ascending and descending arithmetic progression</li> <li>-To remind the pupils, the techniques of quick calculation, through examples.</li> </ul>
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<p>4. Split up a number, into a prime/common factor product</p>	<p>-Identification of prime/common factors -To split up into the product of prime/common factors</p>	<p>-Starting with typical exercise, lead pupils splitting up numbers into prime/common factor products</p>
<p>5. Calculate the highest common factor, and the smallest common multiple, with 3 numbers or more, and with 3 digits or more</p>	<p>Divisor of a number The common divisor of numbers The highest common factor of numbers Multiples of a number Common multiples of numbers The lowest common multiple of numbers</p>	<p>-To lead learners in calculating the highest common factor, and the lowest common factor</p>
<p>6. Solve problems of unequal sharing</p>	<p>Unequal shares: -Knowing the difference of shares -One share being the multiple of the other, -Knowing the quotient of the shares</p>	<p>- For the unequal sharing, to use real or less real teaching aids</p>



<p>7. Calculate the arithmetic average of 2 or many numbers</p> <p>8. Convert a whole number written in the base of 10 into a number written in the base of 2; 3; 5</p>	<p>The arithmetic average</p> <p>System of numeration/notation          -decimal numeration          -numeration in the base of 2, 3 and 5          -passing from base 10 to bases 2, 3 and 5</p>	<p>-Lead pupils in calculating the average of the school results/ class results</p> <p>- make the pupils discover the numeration system rounding up the lines in groups, corresponding to each base          -starting with examples, train pupils to counting in a given base          To show the process a written whole number in base 10, and a number written in base 2, 3, 5          -To do the practical exercises</p>
<p><i>At the end of primary five, the learner should be able to:</i></p> <p>1. Read and write the decimal numbers</p> <p>2. Compare a whole number with a decimal number, the decimal numbers between themselves using the signs &lt;, &gt; and =</p>	<p><b>B. The decimal numbers</b></p> <p>Reading and writing of decimal numbers</p> <p>Comparison of the whole numbers with decimal numbers.          Comparison of the decimal numbers between themselves, ascending and descending order of decimal numbers</p>	<p>- make the learners read and write, decimal numbers, distinguishing the whole numbers and the decimal numbers</p> <p>To show learners the procedure of making comparisons:          Compare the whole numbers with themselves, and the decimal numbers between themselves</p>

<p>3. Apply the 4 operations with the decimal numbers</p> <p><i>At the end of primary five, the learner should be able to:</i></p> <p>1. Read and write the fractions whose common denominator does not exceed 1000</p>	<p>Addition and subtraction of decimal numbers  Multiplication of decimal numbers with a whole number and decimal numbers between themselves.  Division:  - Of a decimal number by a whole number, the quotient having 3 decimals or more of a whole number or a decimal number by a decimal whose quotient has 3 decimals or more</p> <p>Unlimited division  Division of a whole number with a whole number, the quotient does not exceed 3 decimals  The rules of multiplication and division of a decimal number by 10, 100, 1000, 10 000</p> <p><b>C. The Fractions</b></p> <p>Reading and writing and comparison of fractions.</p>	<p>- To apply the rules of each of the 4 fundamental operations</p> <p>- To do exercises respecting the appropriate rules for each operation</p>
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<p>2. Convert:</p> <ul style="list-style-type: none"> <li>- A fraction into improper fraction and vice versa</li> <li>-A decimal number into a fraction and vice versa</li> </ul> <p>3. Carry out the 4 fundamental operations on fractions</p> <p>4. Solve problems related with:</p> <ul style="list-style-type: none"> <li>-purchasing and selling</li> <li>-rule of three</li> <li>-percentages</li> </ul>	<p>Conversion of a fraction into a mixed fraction and vice versa</p> <p>Conversion of a decimal number into a fraction and vice versa</p> <p>Addition and subtraction of fractions whose common denominator does not exceed 1000</p> <p>Rules of multiplication and division:</p> <ul style="list-style-type: none"> <li>- of a whole number with a fraction</li> <li>- of two fractions</li> </ul> <p>Problem solving related with:</p> <ul style="list-style-type: none"> <li>-Purchasing prices, selling prices, income, Profit and loss</li> <li>-the rule of three, simple direct, reversed</li> <li>- to percentages</li> </ul>	<ul style="list-style-type: none"> <li>- introduce the notion of purchasing and selling, using everyday life examples</li> <li>-Starting with typical problems, make pupils solve problems that have got to do with purchasing and selling</li> <li>-Starting with typical problems make pupils solve problems using the rule of three</li> <li>-Starting with school/class results make pupils calculate the percentages</li> </ul>
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<p><i>At the end of primary five, the learner should be able to:</i></p> <p>1. Carry out operations with measurements of length</p> <p>2. Look for the interval number between different objects found on an open line or closed line</p> <p>3. Look for the number of the objects, one can find along an open line, or a closed line</p> <p>4. Solve the problems on the intervals, the lines could be open or closed</p> <p>5. Calculate the real size, the size on scale, the scale, knowing 2 of its 3 sizes</p>	<p><b>Chapter II. THE METRIC SYSTEM</b></p> <p><b>A. The measurement of length</b></p> <p>Exercises with the measurements of length Problems with the measurements of length</p> <p>Intervals between objects on an open line or a closed line</p> <p>Objects along an open line or a closed line</p> <p>Problems on intervals</p> <p>The scale, real size and size on scale</p>	<ul style="list-style-type: none"> <li>- Use the conversion table, with appropriate teaching aids</li> <li>- Starting with typical problems, train pupils to solve those problems using the measurements of length</li> <li>- Use the converting table, and the appropriate teaching aids</li> <li>- Starting with a typical problem, train pupils to solve problems, using the measurements of length</li> <li>- Using teaching aids, that are obtained from outside the classroom</li> <li>- Starting with typical problems, train pupils to solve the problems, involving intervals</li> <li>- Using real and semi real materials, make the pupils discover the real magnitude and the magnitude on the scale</li> <li>- To train the pupils to solving the problems, using the scale.</li> </ul>
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<p><i>At the end of primary five, the learner should be able to:</i></p> <ol style="list-style-type: none"> <li>1. Do the operations on the operations of capacity</li> <li>2. Solve the problems with the measurements of capacity</li> </ol>	<p><b>B. Measurement of capacity</b></p> <p>Remind the pupils of the measurements of capacity</p> <p>Problems on the measurement of capacity</p>	<p>- Use the conversion table, and the appropriate teaching aids</p> <p>-Starting with typical problems, train the pupils to solve the problems, using the measurements of capacity</p>
<p><i>At the end of primary five, the learner should be able to:</i></p> <ol style="list-style-type: none"> <li>1. Do the operations on the measurements of masses</li> <li>2. Make the difference between the net mass, the gross mass, the tare, and calculate them knowing 2 of the 3</li> <li>3. Solve mathematical problems that involve mass</li> </ol>	<p><b>C. Measurement of mass</b></p> <p>Remind the pupils the measurements of masses</p> <p>Calculation of the net mass, the gross mass , and the tare</p> <p>Mathematical problems that involve the measurements of mass</p>	<p>To use the conversion table, and the appropriate teaching aids</p> <p>To use appropriate materials</p> <p>Starting with typical problems, to train pupils to solving problems that involve measurements of masses.</p>

<p><i>At the end of primary five, the learner should be able to:</i></p> <ol style="list-style-type: none"> <li>1. Work out operations using the measurement of surface and the land measures</li> <li>2. Solve the problems using the measurements of surface, and the land measurements</li> </ol>	<p><b>D. The measurement of surface</b></p> <p>To remind the pupils the measurements of surface and the land measurements</p>	<ul style="list-style-type: none"> <li>- To use the conversion table, and the appropriate teaching aids</li> <li>- Starting with typical problems, train the pupils to solve the problems, using the measurements of the surface, and the land measurement</li> </ul>
<p><i>At the end of primary five, the learner should be able to:</i></p> <ol style="list-style-type: none"> <li>1. Recite, read write the measurements of the volume</li> </ol>	<p><b>E. Measurements of volume</b></p> <p>The notion of the volume  Reading and writing the measurements of the volume  Reading and writing the measurements of firewood</p>	<ul style="list-style-type: none"> <li>- Use concrete materials</li> <li>- Use the conversion table, and the appropriate teaching aids</li> </ul>



<p>2. Solve the problems using the relationship between the measurements of the volume, of the capacity and of the masses in the case of water</p> <p><i>At the end of primary five, the learner should be able to:</i></p> <p>1. Convert the measurement of time</p> <p>2. Work out the 4 operations using the measurement of time</p> <p>3. Solve mathematical problems that involve dates and hours</p>	<p>capacity and of the masses in the case of water.</p> <p>Problems that involve the relationship between the measurements of volume, of capacity and of masses in the case of water</p> <p><b>G. The measurement of time</b></p> <p>Converting the measurement of time:  - hours into minutes and seconds, or the minutes and seconds into hours, hours into days and vice verse</p> <p>Operations involving the measurement of time.</p> <p>Problems that involve dates and hours</p>	<p>Starting with typical problems, train the pupils to solve the problems that involve the relationship between the measurement of the volumes, of the capacity and of the masses</p> <p>-To use the appropriate teaching aids  -To train the pupils to convert the measurement of time</p> <p>Starting with the typical problems, to train the pupils in solving the problems that involve dates and hours</p>
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<p><i>At the end of primary five, the learner should be able to:</i></p> <p>1. Define and draw a straight line, a half straight line and a segment of a straight line</p> <p>2. Determine the relative positions of straight lines, and to recognize the different types of angles To measure an angle</p> <p>3. Construct angles, using appropriate apparatus</p>	<p><b>CHAPTER III: GEOMETRY</b></p> <p><b>A. The straight lines and the angles</b></p> <p>A straight line, semi-straight, and a segment of a straight line</p> <p>The relative position of straight lines and the different types of angles</p> <p>Measuring angles using a protractor</p> <p>Construction of angles from 0 degrees to 360 degrees</p>	<p>-Proceed to reminding the learners of some notions learnt in 4<sup>th</sup> year</p> <p>- Lead learners to recognizing and drawing the half straight, and the segments of a straight line</p> <p>-To make the learners discover, the different positions of straight lines</p> <p>-To train learners in using a protractor, to measure the angles</p> <p>-Train the learners to use a protractor, a square, a compass, a graduated ruler, to construct angles</p>
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<p>4. Recognize and determine the adjacent angles. Complementary angles, supplementary angles opposite the top of the triangle.</p> <p><i>At the end of primary five, the learner should be able to:</i></p> <p>1. Solve the problems that are related with the construction of geometrical figures</p> <p>2. Define and construct an hexagon, and an octagon</p> <p>3. Calculate the perimeter and the surface of an hexagon and an octagon</p>	<p>Adjacent angles, complementary and supplementary angles opposite to the top of the triangle</p> <p><b>B. The geometrical figures</b></p> <p>Problems related with the construction of geometrical figures and of visible straight lines ( bisecting lines, mediating line, median, and height) in a triangle</p> <p>Definition and construction of an hexagon, an octagon and their elements</p> <p>Parameters and surface an hexagon and an octagon</p>	<p>Make learners understand Adjacent angles, complementary and supplementary angles opposite to the top of the triangle</p> <p>Using the appropriate apparatus, to draw the visible straight lines, in a triangle, and the pupils put into groups, imitate the model drawn by the teacher</p> <p>Using the appropriate apparatus, to construct/draw, an hexagon, an octagon, and identify their elements</p> <p>Starting with typical problems, to train the pupils to solve the problems, that involve geometric figures</p>
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<p>4. Solve the problems, that involve the geometrical figures</p> <p><i>At the end of primary five, the learner should be able to:</i></p> <p>1. Define the cube, parallelepiped, and a cylinder, calculate their surface and their volume, to realize the expansion of those solids</p> <p>2. To solve the problems involving the geometric solids</p>	<p>Problems that involve the geometric figures</p> <p><b>C. The solids</b></p> <p>The cube: Properties, expansion, area and volume</p> <p>The parallelepiped: Properties, expansion, area and volume</p> <p>The right cylinder: Properties, expansion, area and volume</p> <p>Problems involving geometrical solids</p>	<p>-Using appropriate apparatus, make, pupils, now put into groups, to construct and develop the cube, the parallelepiped, and the right cylinder</p> <p>- Guide the pupils to discover the formulae used to calculate the area and the volume of those solids</p> <p>-Starting with typical problems, train pupils to solve the problems that involve geometric solids</p>
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<p><i>At the end of primary five, the learner should be able to:</i></p> <p>To determine the mode, the scope, and calculate the average of a statistical series</p> <p><i>At the end of primary five, the learner should be able to:</i></p> <p>1. Represent the elements of a set, in a diagram of Venn</p>	<p><b>Chapter IV. THE STATISTICS</b></p> <p>-Statistical data</p> <p>Example: the age of the pupils of one class, their heights, their class results, daily temperatures, the number of HIV, and AIDS victims per year, in a given country</p> <p>-The repetition rate, the mode and the average</p> <p>-The statistical scope</p> <p><b>CHAPTER V. : THE NOTION OF A SET</b></p> <p>- Representation of the elements of a set in the diagram of Venn</p> <p>- Definition of a set in extension</p>	<p>-Starting with an example, help the pupils to draw a sequence table, of a statistical series</p> <p>-Make the pupils discover certain characteristics of statistical series</p> <p>-From the facts of everyday life, to bring out the notion of a set and its elements : Examples: pupils of a given classroom,...</p> <p>-Represent the elements of a set in a diagram of Venn</p> <p>- Train the pupils to make a definition of a set in</p>
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**DISTRIBUTION OF LESSONS: 5<sup>TH</sup> CLASS OF PRIMARY EDUCATION  
FIRST TERM**

	<b>NUMERATION AND OPERATIONS</b>	<b>METRIC SYSTEM</b>	<b>GEOMETRY</b>
1.	The whole numbers -Order and categories of numbers that do not exceed 1000 000 -Comparison of numbers that do not exceed 1000 000 using the signs <, > and = - the increasing and decreasing order	To remind and do exercises on the measurements of length To solve problems that involve the measurements of length	The straight line, a semi- straight line, a segmented straight line
2.	Addition and subtraction Progressive arithmetic	Intervals between objects on a closed or open line	The relative positions of straight lines
3.	Multiplication with whole numbers	Objects on a closed or open line	The different types of angles
4.	Characteristics of the addition and the multiplication -Commutative, associative and distributive laws	Problems on intervals	Measurements of angles using the protractors
5.	Division without a remainder	The scale, real size, scale of sizes	Construction of angles from 0 degrees to 360 degrees

6.	The rules of quick arithmetic: - The product of a number with 3 digits or more by 5, 9, 10, 11, 19, 20, 25, 49, 50, 99, 100	_____	The adjacent angles, the complementary angles, and the supplementary angles
7.	The complement of a number with 3 figures, so as to get a number that end up with 0, and that does not exceed 1000	To remind the pupils the measurements of capacity	The angles that are opposite on the top
8.	The quotient of an even number with 3 digits and with 2 figures  To cast out nines	Problems involving the measurements of capacity	Constructing geometrical figures  The Triangle
9 10.	The divisibility rules of with 2, 3, 4, 5, 8, 9, 11, 25, 125  Revision	To remind the pupils, the measurements of masses  Revision	The distinct straight lines of a triangle  Revision
11.	Exams	Exams	Exams

**5<sup>TH</sup> CLASS / SECOND TERM**

	<b>NUMERATION AND OPERATIONS</b>	<b>METRIC SYSTEM</b>	<b>GEOMETRY</b>
1.	-Identification of a prime number - Decomposition of products into common/ prime factors	To calculate the mass net, mass brut, and the tare	The distinct straight lines of a triangle
2.	-The divisor of a number -The commons divisors of numbers -The highest common divisor of numbers -The multiple of a number -The lowest multiple of numbers	The problems involving the measurements of masses	_____
3.	Unequal shares: Knowing the difference of the shares One of the shares, being the multiple of the other	To remind the pupils the measurements of the surface and the land measurements	Definition and construction of an Hexagon with all its characteristics
4.	Unequal shares: Knowing the quotient of two or many shares	To solve problems that involve the measurements of surface	Perimeter and area of an Hexagon



5.	The average in arithmetic The numbering system	To solve problems that involve land measurements	Definition and drawing of an octagon with all its characteristics
6.	-Reading and writing decimal numbers -To compare decimal numbers between themselves -Increasing and decreasing order	The measurements of the volume: -Notion of the volume -Reading and writing the measurements of the volume	Perimeter and area of an octagon
7.	Addition and subtraction of decimal numbers	-Reading and writing the measurement of firewood	Problems that involve geometrical figures
8.	Multiplication of a decimal number with a whole number, and with two decimal numbers between themselves	To convert the measurements: -Of volumes between them -Of firewood between them	The cube: the properties Its development
9.	Division: -of a decimal number with a whole number, the quotient having 3 decimal numbers or more -of a whole number or a decimal number by a decimal number, the quotient having 3 decimals or more	To convert the measurements of volumes into the measurements of firewood, and vice versa	The cube: area and the volume
10.	Unlimited division	To solve the problems that involve the measurements of volume and the measurements of firewood	The parallelepiped: -Properties -Development

11.	<p>Division of a whole number with another whole number, whose quotient does not exceed 3 digits</p> <p>-The multiplication , and division rules of a simple decimal by 10, 100, 1000, 10 000</p>	<p>- To solve the problems involving the measurements of volumes</p>	<p>The parallelepiped:</p> <ul style="list-style-type: none"> <li>-the surface</li> <li>- the volume</li> </ul>
12.	Revision	Revision	Revision
13.	Exams	Exams	Exams

**5<sup>TH</sup> CLASS / THIRD TERM**

	<b>NUMERATION AND OPERATIONS</b>	<b>METRIC SYSTEM</b>	<b>GEOMETRY</b>
1.	The fractions: -Reading, writing, and comparing fractions	Relationship between the measurements of the volume or the measurements of capacity, and the measurements of masse in the case of water	The straight cylinder:  -Properties -Development
2.	To convert the fractions into fractioned numbers and vice versa	Relationship between the measurements of capacity, and measurements of masse in the case of water	The straight cylinder: -Surface -Volume
3.	To convert the decimal numbers into fractions and vice-versa	To do exercises on the relationship between the measurements of volume, the measurements of capacity, and the measurements of masse in the case of water	The problems involving the geometric solids
4.	Addition and subtraction of fractions whose denominator does not exceed 1000	To solve problems that involve the relationship between the measurements of volume, the measurements of capacity, and those of masse in the case of water	Problems involving the geometric solids
5.	Fraction of a whole number The rules of multiplication: -Of a whole number with a fraction -Of two fractions	To convert the measurements of time: - The hours into minutes and in seconds	<b>STATISTICS:</b>  Statistical series

6.	The rules of division: -Of a whole number with a fraction -Of two fractions	To convert the measurements of time: - the hours into days and vice versa	The orderly table of statistic series
7.	Problems related to: -Purchasing and selling ( Purchasing price, selling price, gain, loss )	Operations on the measurements of time	Repeating
8.	Problems related to: -the rule of three simple -the rule of three inverse	Operations on the measurements of time	The mode
9	Problems related to percentages	Problems where dates and hours are involved	The average The exercises
10.	The sets	_____	The scope
11.	Revision	Revision	Revision
12.	Exams	Exams	Exams

## CURRICULUM 6<sup>TH</sup> YEAR PRIMARY EDUCATION

SPECIFIC OBJECTIVES	CONTENT	METHODOLOGICAL NOTES
<p><i>At the end of primary six, the learner should be able to:</i></p> <p>1. Break down, read and write a number of 9 digits or more</p> <p>2. Compare numbers of 9 digits</p> <p>3. Apply the 4 operations on natural whole numbers, the results of which exceed a number of 9 digits</p>	<p><b>Chapter I : NUMERATION AND OPERATIONS</b></p> <p><b>A. The whole numbers</b></p> <p>Break down, read and write the numbers of 9 figures or more</p> <p>Classify the digits of a number that does not have more 9 digits</p> <p>Comparing the numbers with 9 digits, using the signs <math>&lt;</math>, <math>&gt;</math>, <math>=</math></p> <p>Do the addition and subtraction of whole numbers            Multiplication with whole numbers.            The properties of the addition and the multiplication            -Commutative            -Associative</p>	<p>-Practical exercises</p> <p>-From a numeration table, guide the pupils to identify the order and the classification of digits of a number</p> <p>-Practical exercises</p>

	<p>-Distributive laws of multiplication, in relation to the addition and in relation to subtraction The exact division, division where the remainder is not 0</p> <p>Relationship <math>a=bq + r</math>, <math>r &lt; b</math> where <math>a</math>, <math>b</math>, <math>q</math>, <math>r</math> are natural numbers Arithmetic progression and geometrical progression</p> <p>Rules of fast calculation: The product of a number with four digits or more by 5, 9, 10, 11, 19, 20, 25, 49, 50, 99, 100, 1000 or 10 000 -A complement of a number with 4 digits, so as to have a number that ends with 3 zeros and that does not exceed 10 000 -A product of 2 numbers found between 10 and 20 -The square of a number that ends up with 5 and that does not exceed 3 digits - The square of a number of 2 digits and that ends with 1, 4, 6, or 9</p>	<p>-Make the learners discover the reason of a progression</p> <p>Guide the learners to determine other terms of a progression Make the learners discover the rules of quick arithmetic</p>
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## 6<sup>TH</sup> YEAR OF PRIMARY EDUCATION

<p>4. Interpret the powers:</p> <ul style="list-style-type: none"> <li>. <math>10^n</math> with <math>n \in \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}</math></li> <li>. <math>a^n</math> <math>a \in \mathbb{N}^*</math>, <math>1 \leq n \leq 5</math> and <math>n \in \mathbb{N}</math></li> </ul> <p>5. Break down the whole number into a product of prime factors</p> <p>6. Calculate the highest common divider and the smallest common multiple of 4 numbers or more</p> <p>7. Extract the square root of a whole number with 4 digits or more, the answer being a whole number</p> <p>8. To solve the problems with unequal shares</p>	<p>The powers :</p> <ul style="list-style-type: none"> <li>. <math>10^n</math>, <math>1 \leq n \leq 10</math> and <math>n \in \mathbb{N}</math></li> <li>. <math>a^n</math> <math>a \in \mathbb{N}^*</math>, <math>1 \leq n \leq 5</math> and <math>n \in \mathbb{N}</math></li> </ul> <p>Breaking down a whole number into a product of prime factors</p> <p>The highest common divider, and the smallest common multiple</p> <p>Extract a positive square root, the answer being a whole number</p> <p>The unequal sharing:</p> <ul style="list-style-type: none"> <li>-knowing the total sum and the difference of the shares</li> <li>-knowing the total sum and the quotient of the shares</li> </ul>	<p>-Starting with a product with equal factors, guide the pupils to understanding the notion of mathematical powers</p> <p>-To use the practical disposition to break down a number into a product of prime factor, and to present into a product in powers</p> <p>Starting with an example, lead the learners to extracting the square root of a whole number</p> <p>Starting with the examples of everyday life, to lead the learners to solving, the different mathematical problems</p>
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<p>9. Solve the problems that are related to:</p> <ul style="list-style-type: none"> <li>- purchasing and selling</li> <li>-the rule of three</li> <li>- percentages</li> <li>-simple interest, and compound interest</li> <li>-mixtures (proportions)</li> </ul> <p>10. Read and write Roman figures</p> <p>11. Convert a written number, into Arabic figure, and into the Roman figures, and vice versa</p>	<ul style="list-style-type: none"> <li>-knowing the difference and the quotient of the shares</li> <li>-the shares are proportional to the whole numbers</li> </ul> <p>‘</p> <p>Purchasing price, selling price, cost price, profit, loss</p> <p>Compound rule of three, directly or inverse proportion</p> <p>Percentages</p> <p>Simple interests, and compound interests</p> <p>Mixtures</p> <p>-Reading and writing roman figures I,.....V,.....L.....M</p> <p>-Converting numbers written in Arabic figures into the Roman figures and vice versa</p>	<p>From the examples in practical life, lead the pupils to the different mathematical problems</p> <p>-With examples make the learners have the habit of writing roman figures, respecting the rules</p> <p>-Lead the learners to converting the Arabic into Roman figures and vice versa</p>
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<p>vice versa</p> <p>12. Convert a number of base 2, 3, and 5 into bases 10, and vice versa</p> <p>13. Do the addition and subtraction in a binary system</p>	<p>Converting a number of base 2, 3, and 5 into base 10 and vice versa</p> <p>Addition and subtraction in the binary system</p>	<p>Training learners to converting a written number in a base to another</p> <p>Starting with typical examples, lead the learners to do additions and subtractions in the binary system</p>
<p><i>At the end of primary six, the learner should be able to:</i></p> <p>1. Do the 4 operations on decimal numbers</p> <p>2. To do fast, the multiplication and the division of a decimal number by 0,25; 0,5; 0,75; 10; 100; 1000</p>	<p><b>B. The decimal numbers</b></p> <p>Varied exercises on decimal numbers</p> <p>The rules of multiplication and division</p>	<p>-Varied exercises</p> <p>Using examples, to come out with the rules of multiplication and division of decimal numbers</p>

<p><i>At the end of primary five, the learners should be able to:</i></p> <ol style="list-style-type: none"> <li>1. Do the four operations on the fractions</li> <li>2. Do the exercises that involve fractions and decimal numbers at the same time.</li> <li>3. Solve mathematical problems with fractions</li> </ol>	<p><b>C. The fractions</b></p> <p>A variety of exercises on fractions</p> <p>Exercises that involve decimals and fractions at the same time</p> <p>To solve mathematical problems on fractions</p>	<p>-Using varied examples, to master the four operation with the fractions</p> <p>-Using examples to establish the relationship between decimal numbers and fractions</p> <p>-Using practical life examples, to lead the learners to solving mathematical problems that involve decimal numbers and fractions</p>
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<p><i>At the end of primary five, the learners should be able to:</i></p> <p>Solve the mathematical problems, that involve measurements of length, of capacity, of masses, of surface, and land measurements, applying more than one operation</p> <p><i>At the end of primary five, the learners should be able to:</i></p> <p>Solve the mathematical problems that involve the measurements of volumes</p>	<p><b>Chapter II : THE MEASUREMENTS</b></p> <p><b>A. The measurement of length, of capacity, of mass, of area, and land</b></p> <p>Mathematical problems, with measurements of length, of capacity, of masses, of surface, and the measurements of land.</p> <p><b>B. Measurement of volume</b></p> <p>Problems that involve measurements of volumes</p>	<p>-Using examples of the practical life, lead the pupils to solving the different problems, using the measurement of length, of capacity, of masses, of the surface, and the measurement of land</p> <p>- Using practical life examples, lead the learners to solving different problems that involve the measurements of volumes</p>
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<p><i>At the end of primary five, the learners should be able to:</i></p> <ol style="list-style-type: none"> <li>1. Do the 4 operations with the measurement of time</li> <li>2. Solve the problems with the measurements of time</li> <li>3. Solve the mathematical problems that involve movement in a uniform straight line</li> </ol>	<p><b>C. Measurement of Time</b></p> <p>Operations with the measurements of time</p> <p>Operations that involve the measurements of time</p> <p>Notion on uniform linear motion: Distance, speed and time Problems that involve uniform linear motion</p>	<p>Using practical life examples, lead the learners to solving mathematical problems that involve the measurements of time</p> <p>-Organize a running activity, involving 3 learners, on given distance, to determine the exact time used by each learner, and discover the speed of each</p> <p>-Discover the formula, used to calculate the speed in relation to the distance and the time used - In the class proceed to show in a diagram, the uniform linear movement</p>
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<p><i>At the end of primary five, the learner should be able to:</i></p> <ol style="list-style-type: none"> <li>1. Construct a mediating line, a bisecting line, a median line and the height of a triangle</li> <li>2. Construct, and measure the different angles</li> </ol> <p><i>At the end of primary five, the learners should be able to:</i></p> <ol style="list-style-type: none"> <li>1. Solve the problems that involve quadrilaterals and triangles</li> <li>2. Define, and construct, the polygons, their apothems and calculate their parameters, and their areas</li> </ol>	<p><b>Chapter. III. GEOMETRY</b></p> <p><b>A. Straight lines and Angles</b></p> <p>A mediating line, a bisecting line, a median, and the height</p> <p>The technique of drawing, constructing, and measuring angles in degrees</p> <p><b>B. The Geometrical Figures</b></p> <p>Mathematical problems with quadrilaterals, and triangles</p> <ul style="list-style-type: none"> <li>- Pythagoras theory</li> </ul> <p>Regular polygons: Properties, apothems, perimeter, area</p> <p>Irregular Polygons:</p>	<p>-Use the appropriate apparatus</p> <p>do practical exercise</p> <ul style="list-style-type: none"> <li>-Calculate the area of the squares that are constructed on the sides of a rectangle, so as to show the relationship between the sides of a rectangle triangle: Pythagoras theory</li> <li>-Proceed to observing, and to the handling, cuttings, and to the construction of geometrical figures</li> <li>-Proceed to doing practical exercises, starting with the cutting of irregular polygons and the regular</li> </ul>
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<p>2. Identify a pyramid, a cone and a sphere</p> <p>3. Solve the mathematical problems, that are related to given geometrical solids</p>	<p>A Pyramid, a cone, and a sphere</p> <p>Mathematical problems, on the geometrical solids ( cube, parallelepiped, right cylinder, hollow cylinder, prism )</p>	<p>-Do the real illustrations</p> <p>-Do various exercises</p>
<p><b>Chapter IV. ALGEBRA</b></p>		
<p><i>At the end of primary six, the learner should be able to:</i></p> <p>1. Graduate a straight line, and be able to identify the point of graduation</p>	<p>Locating integers on the graduation points</p>	<p>-Using a ruler, look for the points on an horizontal axe, from a point called 0</p>
<p>2. Determine additive inverse of integers</p>	<p>Additive inverse of integers The distance between 2 points of the graduation</p>	<p>-Lead the pupils to discover that all the numbers on the right of 0 are positive, while the numbers on the left of 0 are negative</p>
<p>3. Compare two integers using the signs &lt;, &gt; and =</p>	<p>Comparison of integers</p>	
<p>4. Carry out addition of integers</p>	<p>Addition of integers</p>	<p>-Make the pupils note that the numbers on the right of the 0, have their opposite on the left of the 0, and they are at equal distances</p>
<p>5. Carry out subtractions of integers</p>		

<p>6. Multiplication and division of relative integers</p> <p>7. Simplify an algebra expression calculate the numeric value of an algebra expression</p> <p>8. Solve the equation <math>ax + b = c</math> <math>a \in \mathbb{Z}^*</math>, <math>b \in \mathbb{Z}</math>, <math>c \in \mathbb{Z}</math></p> <p>9. Use the first degree equations to the unknown, in solving certain mathematical problems</p>	<p>The subtraction of integers</p> <p>The product and the quotient two relative integers:</p> <ul style="list-style-type: none"> <li>. of positive signs</li> <li>.of different signs</li> <li>.of negative signs</li> </ul> <p>The simplification of an algebra expression Numeric value of an algebra expression</p> <p>Solving the equations of the type <math>ax + b = c</math>, <math>a \in \mathbb{Z}^*</math>, <math>b \in \mathbb{Z}</math>, <math>c \in \mathbb{Z}</math> ( <math>a</math> is an integer different from zero <math>b</math> and <math>c</math> can be any integers</p> <p>Solving the mathematical problems</p>	<p>-Do various exercises</p> <p>-Do various exercises</p> <p>-Put emphasis on the products and the quotients of signs</p> <p>-Do various exercises</p> <p>-Starting with the typical equations, to the pupils to solve the equations from the known to the unknown (1<sup>st</sup> degree)</p> <p>-To train pupils to solve various problems, using an equation of the 1<sup>st</sup> degree with one unknown</p> <p>-Draw two perpendicular straight lines, that cross each other at point 0</p>
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<p>10. Draw a graph when given co-ordinates on a Cartesian plane</p> <p>11. Represent in graphs of a fraction of the 1<sup>st</sup> degree</p> <p>12. Show elements of union and intersection of sets</p>	<p>Representation of given coordinates in a system of axis</p> <p>Representation in graphs of a function of the first degree  <math>Y = ax + b</math>; a and b being whole natural numbers with <math>a \neq 0</math></p> <p>The union and the intersection of three sets or more</p>	<p>- Graduate the two straight lines from point 0  On a horizontal line, the points on the right of 0 are indicated with positive numbers;  The points on the left of 0 are indicated by negative numbers;  On the vertical right, the points above 0 are indicated by positive numbers; the points below 0 are indicated by negative numbers  -To train learners to show a given coordinated number  -To train learners to represent a straight line of a given equation</p> <p>To train the learners to represent the union and the intersection of three sets or more, using a Venn diagram</p>
<p><i>At the end of primary six, the learner should be able to:</i></p> <p>1. Collect and organise statistical data</p>	<p><b>Chapter. V. STATISTICS</b></p> <p>Graph</p>	<p>Train learners to collect the data and organize them</p>

<p>2. Represent the statistical data on a graph.,</p>	<p>A histogram, a bar chart, pie-chart</p>	<p>Train learners to draw the histogram, and bar chart, using perpendicular axis</p> <p>Train learners to represent the statistic data, using circular diagram, using a compass, and a protractor</p>
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## 6<sup>TH</sup> CLASS PRIMARY EDUCATION

### FIRST TERM:

	<b>OPERATIONS</b>	<b>MEASUREMENTS AND ALGEBRA</b>	<b>GEOMETRY AND STATISTICS</b>
1.	A. Whole numbers  Order and classes of numbers up to 9 Comparing numbers with 9 digits	Measurement of capacity and mass	The straight lines
2.	Addition and subtraction	Measurement of surface	The angles
3.	Multiplication and its properties Division with no remainder and with remainder	Measurement of volume	Idem
4.	Arithmetic and geometrical progressions	Idem	Mathematic problems on quadrilaterals
5.	Rules of fast calculations	Measurement of time	Idem
6.	Rules of fast calculation	Idem	Regular polygon
7.	Powers	Idem	Idem
8.	Idem	Idem	Irregular polygons (The properties)

9.	Decomposing a whole number into a product The smallest common multiplier, The highest common denominator	Idem	Idem
10.	Revision	Revision	Revision
11.	Exams	Exams	Exams

## 6<sup>th</sup> CLASS OF PRIMARY EDUCATION

### SECOND TERM

WEEK	OPERATIONS	MEASUREMENTS AND ALGEBRA	GEOMETRY AND STATISTICS
1.	Extraction of square roots	<u>ALGEBRA</u> The relative integers	Properties of a rectangular triangle Pythagoras' theorem
2.	Idem	Idem	Properties of a rectangular triangle Pythagoras' theorem
3.	Unequal shares	Addition of relative integers	The angles of a polygon
4.	Idem	Subtraction of relative integers	Calculation of a surface of a circle and of a crown
5.	Mathematical problems: purchasing price, cost price, selling price	Multiplication of relative integers	Idem
6.	Mathematical problems: purchasing price, cost price, selling price	Division of relative integers	Development and calculation of the surface and the volume of a prism

7.	Mathematical problems on the interests and losses	Idem	Idem
8.	Mathematical problems: rule of three; percentages	Simplifying an algebra expression	Identifying a cone and a pyramid
9.	Simple interest	Simplifying an algebra expression Numeric value of algebra expression	Idem
10.	Compound interest	Solving the equations of the following type: $Ax + b = 0$	Identification of a sphere
11.	Exercises on simple interest, and compound interest	Solving the equations of the following type $Ax + b = 0$	Idem
12.	Revision	Revision	Revision
13.	Exams	Exams	Exams

## CLASS 6 OF PRIMARY EDUCATION

### 3<sup>RD</sup> TERM

	OPERATIONS	MEASUREMENTS AND ALGEBRA	GEOMETRY AND STATISTICS
1.	Mathematical problems on mixtures	Mathematical problems on the equations of 1 <sup>st</sup> category	Representing points in an axis system
2.	Idem	Idem	Idem
3.	The roman figures	Idem	Graphic representation of a 1 <sup>st</sup> degree function
4.	Exercises on the fractions	Union of sets	Idem
5.	Mathematical problems on the fractions	Idem	An orderly table
6.	Reading and writing of numbers of base 10, into base 2, 3, and 5	Joining sets	Histogram, bar charts, and circular diagrams
7.	To convert numbers of base 2, 3, and 5 into base 10	Idem	Idem
8.	Idem	_____	Idem
9.	Addition and subtraction in a binary system	_____	Idem
10.	Idem	_____	Idem
11.	Revision	Revision	Revision
12.	Exams	Exams	Exams

## **V. EVALUATION APPROACH**

During the lesson the teacher prepares the questions to ask pupils, these can be oral or written questions.

This allows the teacher to verify, if the pupils are attentive, if the lesson is appropriate, and if the teaching methods used are effective. After verification the teacher, can take appropriate measures, to achieve his objective.

During this verification the teacher, should not reject automatically, the false answers, given by the pupils; he/she should try to guide the answer in a better direction. The evaluation exercises should be carried out at different levels.

The teacher should also evaluate the pupils through written tests, after one or two weeks, through end of term, and end of year examinations.

The teacher will always bear in mind, that the evaluation approach, should focus on verifying, how the acquired knowledge, in all the different branches of mathematics, can be put together, in the solving of similar problems, in the every day life of the pupil.

During the correction of the exercises, of tests or examinations, the teacher will take care of all the pupils, but he/she, should give particular attention to weaker pupils.

Leaving alone the home works, there should be assignments done in class, under the guidance of the teacher; this allows the teacher to check on how the pupils participate during their training.



## VI. PARTICULAR FACTORS

During the second cycle, the learner meets a number of problems, such as abrupt changes of certain writings, or numbering especially on the units of measurement. Hence, for a example j4 will become 4j, F50 will become 50F. The teacher will have to explain to the pupils, why those changes, and make them get used to those new writings.

The teacher will not only depend on the school book at hand, but will also try to expand his/her documentation. His/her teaching should also take into consideration such fields as cognitive, emotional, and psycho- motor

One should not put full stops, commas, to distinguish the classes, in the writing of whole numbers. Spacing should be enough, to determine the classes.(Ex.: 1.584.000 will be 1 584 000)

For decimal numbers, the part that is whole will be separated from the decimal part by a comma (Example: 11,545)

Terms like weight, net weight, gross weight, having been replaced respectively by mass, and net mass and gross mass, and should also change their symbols. Hence we shall have the following symbols: mass (m), net mass (NM) gross mass (GM). One should also note that the formula for finding the density will also have to change.

## **VII. BIBLIOGRAPHY**

### **BOOKS FOR PRIMARY FOUR**

- 1.Imibare 4 Igitabo cy'Umwalimu
- 2.Livre de l'eleve 4ieme primaire ( traduit du Kinyarwanda en Francais ). Gisenyi 2001
- 3.Primary school Mathematics BK4, TR's BK 4
- 4.Primary School Mathematics BK 4, TR's bk 4
- 5.Primary Mathematics for Uganda BK 4, TR's BK 4
- 6.Primary Mathematics for Uganda BK 4, TR's BK 4
- 7.Primary Mathematics 2000. Pupil's books: 2 and 3 by Kiggundu- Mukasa Daniel et al. MK Publishers-Kampala. 2000
- 8.Primary Mathematics 2000. Teachers guide 6 by Mugumu Deogratias et al. MK Publishers-Kampala 2000

### **BOOKS FOR PRIMARY FIVE**

- 1.Imibare 5 Igitabo cy'Umwalimu
- 2.Livre de l'eleve 5ieme primaire ( traduit du Kinyarwanda en Francais ). Gisenyi 2001
- 3.Primary Shool Mathematics BK 5, TR's BK 5
- 4.Primary school Mathematics BK 5, TR's BK 5
- 5.Primary Mathematics for Uganda BK 4, TR's BK 4
- 6.Primary Mathematics for Uganda BK 5, TR's BK 5
- 7.School Mathematics by Abdu Kayizzi
- 8.Primary Mathematics 2000. Pupil's books: 2 and 3 by Kiggundu-Mukasa Daniel et al. MK Publishers-Kampala. 2000
- 9.Primary Mathematics 2000. Teachers guide 6 by Mugumu Deogratias et al. MK Publishers-Kampala 2000

## **BOOKS FOR PRIMARY SIX**

1. Imibare 6 Igitabo cy'Umwalimu
2. Livre de l'eleve 5ieme primaire ( traduit du Kinyarwanda en Francais ). Gisenyi 2001
3. Primary School Mathematics BK 6, TR's BK 6
4. Primary School Mathematics BK 6, Pupil's BK 6
5. Primary Mathematics for Uganda BK 6, TR's BK 6
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12. Primary Mathematics 2000. Pupul's books: 2 and 3 by Kiggundu- Mukasa Daniel et al. MK Publishers- Kampala. 2000
13. Primary Mathematics 2000. Teachers guide 6 by Mgumu Deogratias et al. MK Publishers- Kampala 2000