THE REVOLUTIONARY GOVERNMENT OF ZANZIBAR

MINISTRY OF EDUCATION AND VOCATIONAL TRAINING

MATHEMATICS

SYLLABUS FOR PRIMARY SCHOOLS

STANDARD V – VI

2009

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INTRODUCTION

This is the syllabus for Mathematicsto be taught in Standard V – VI. In the previous (1998) curriculum, pupils in Standard I – VII studied the content of Mathematics under the subject called Hisabati. Thus, to large extent the content of this syllabus consists of a synthesis of topics which were taught under Hisabati in Standard VI and VII in the 1998 curriculum.

This introduction gives explanations on the background to the improved curriculum and the importance of Mathematics. Next, there are the Goals of Education in Zanzibar, the Objectives of Primary Education and lists of class level competences and class level objectives. These are followed by explanations on both the selection and sequencing of topics as well as the components of the teaching/learning tables.

Reasons for the Development of the New Primary Education Curriculum

In 2008/09 the Revolutionary Government of Zanzibar undertook the revision, condensation and improvement of the curriculum for primary education. Its goal was to make the curriculum conform with the focus of Zanzibar Education Policy (2006). The policy seeks to improve, among other shortcomings, the unsatisfactory structure, quality and relevance of primary education. The 2006 Education Policy declares , among other issues, that early childhood education shall be part of basic education, the primary education cycle will be of six (6) years instead of seven (7) years, and that English will be used as a medium of instruction for some subjects in standard V and VI. Other reasons for the revision, condensation and improvement were:

- Government response to global trends regarding social, scientific and technological changes/advancements.
- Government response to public pressure for expanding access and promoting the quality of education.
- Government response to the findings of the 2008 Needs Assessment Survey for Primary Curriculum Review.

The 2008 survey pointed out the following weaknesses in the 1998 primary education curriculum.

- It did not promote communication skills and creative thinking adequately
- It did not adequately focus on the needs of the disadvantaged pupils, cross-cutting issues, life-skills and globalization.
- There was predominance of teacher-centred approaches (instead of learner-centred ones).
- There was overuse of theoretical teaching/learning (instead of applying interactive or participatory techniques).
- There was minimal assignments geared to English usage and the teaching/learning of English language.

In response to those challenges the government decided to provide competence - based education in order to enable learners develop basic skills and attitudes needed by the society. It also resolved that primary education content be linked carefully with both pre-school and secondary education content. In order to avoid repetition or duplication of subject content.

Importance of Mathematics

Mathematics enables the pupils to think logically and apply the knowledge acquired in day to day life. It also develops skills for analysing situations and making reasonable decisions.

Goals of Education in Zanzibar

The goals of education are:

1. To promote and sustain cultural values, attitudes, customs of the peoples of Zanzibar/Tanzania and to enhance unity and cultural identity.
2. To promote the acquisition and appropriate use of all forms of knowledge and skills for the full development of the human personality and quality life improvement of the society.

3. To enable every citizen to understand and respect the fundamentals of the National Constitution as well as the enshrined human and civic rights, obligations and responsibilities.
4. To promote and enable a rational use, management and conservation of the environment.
5. To instill love and respect for work, self and wage employment, self work discipline and best performance.
6. To inculcate principles and practices of tolerance, peace, love, justice, understanding, human rights and fundamental freedoms, national unity and international cooperation as enshrined in the international basic charters.

General Objectives of Primary Education

The following are the General Objectives of Primary Education in Zanzibar:

1. To enable all children of school going age develop and sustain strong foundations of skills in reading, writing, counting, creativity and communication in Kiswahili, English and other foreign languages.
2. To enable learners understand the application of science and technology and recognize its contribution to national and international development.
3. To lay, develop and sustain in learners strong foundations of thinking skills and inquisitiveness in order to understand their environment and social relationships.
4. To enable the learners understand how past events influence present events as well as future ones.
5. To discover learner's talents from their early age in order to sustain and develop them.
6. To lay strong foundations of skills of observation, thinking and co-operation in solving problems which hinder their personal development and the development of their society.

7. To prepare learners for joining secondary education.
8. To enable the learners develop mental abilities and interest in continuous search for knowledge.
9. To familiarize learners with productive vocational activities and promote their readiness for fulfillment of their social responsibilities.
10. To enable learners recognize and uphold national unity as well as the cooperation between their nation and other nations and people.
11. To enable the learners develop acceptable moral, cultural and ideological values in order to promote patriotism and enable them to understand their country's historical, political and social situation.
12. To develop and sustain learners' self – discipline, observance of gender equality and maintenance of personal and other peoples' health.
13. To enable the learners develop habits of smartness and cleanliness and proper use of their leisure time.
14. To promote learners' love for their environment and interest in environmental conservation.

General Competences in Mathematics

This curriculum is competence – based. Therefore, after studying Mathematics up to Standard VI, the pupils shall demonstrate ability to:

1. Apply numbers in various mathematical operations.
2. Collect data and present it using charts, tables and graphs.
3. Solve problems using mathematical knowledge and skills.
4. Apply arithmetic operations to solve problems related to currency.
5. Apply skills for searching knowledge and mathematical skills from libraries and other ICT facilities.

General Objectives of Mathematics Subject

Mathematics is taught in primary schools in order to enable the pupils to:-

1. Develop and apply skills of using numbers in various mathematical problems.
2. Acquire knowledge for collecting, interpreting and presenting data in tables, charts and graphs.
3. Develop mathematical knowledge and skills to solve daily life problems.
4. Understand the construction of different figures using mathematical instruments.
5. Develop interest, skills and knowledge in solving mathematical problems related to currency.
6. Develop habits of applying library and ICT facilities to acquire mathematical knowledge and skills.

Selection of Topics

This syllabus is presented in a sequence of topics, each with its corresponding sub-topics. These are arranged such that knowledge and skills acquired in Standard V through studying certain aspects of given topics become the basis for learning other aspects of these topics in Standard VI. The teacher is advised to teach related topics in the same order as presented in the syllabus. The table below shows the main topics covered in the syllabus and their sequence:

S.NO	MAIN TOPICS	STANDARD V	STANDARD VI
1.	Writing numbers in words.	√	-
2.	Types of Numbers.	√	√
3.	Factors.	√	√
4.	Multiples.	√	√
5.	Fractions.	√	√
6.	Decimals.	√	-
7.	Bases.	√	-
8.	Angles.	√	-
9.	Parallel and Intersecting Lines.	-	√
10.	Triangles.	√	√
11.	Length.	√	-
12.	Circles.	√	-
13.	Area.	√	√
14.	Volume.	√	√
15.	Conversion of Units.	√	√
16.	Calendar.	√	√
17.	Simple Interest.	-	√
18.	Currency Exchange.	-	√

S.NO	MAIN TOPICS	STANDARD V	STANDARD VI
19.	Percentage Loss and Gain.	√	-
20.	Algebra.	√	√
21.	Ratio.	√	√
22.	Averages.	-	√
23.	Graphs and Charts.	√	√

Structure of the Syllabus

This syllabus consists of two major sections: the preliminary matters and the teaching/learning tables.

Preliminary Section

This section consists of the cover page, title page, issuing authority page and table of contents. Next, there is information on the background to the improved curriculum, Goals of Education in Zanzibar and the General Objectives of Primary Education. Other matters include the general competences in Mathematics, general objectives of Mathematics and information on the components of the teaching/learning tables.

Teaching and Learning Tables

This section consists of two main parts representing Standard V and VI. Each part is preceded by lists of class level competences and objectives. These are followed by a table with the following headings: topics/sub-topics; specific objectives; teaching/learning techniques; materials/aids; assessment and periods. The following are explanations for the components listed above.

Topics/Sub-topics

The main topics reflect the subject content to be taught/learnt. Under each main topic follow its sub-topics. These determine the scope of coverage of the main topic.

Specific Objectives

These are statements about knowledge, skills and attitude that learners should achieve after being taught or learning the given sub-topic. For each specific objective there is corresponding content in the form of a sub-topic. Specific objectives suggest the scope of the content to be taught/learnt at each level. They also guide the teacher in the development of lesson objectives as well as in the teaching process. Specific objectives focus each pupil individually. Therefore, sign language ought to be applied for pupils with hearing impairment. Tactile materials and materials in Braille notation should be used for pupils with visual impairment. Similarly, facilities like Braille machine, A- 4 frame and haring aids shall be provided for pupils with special needs. The teaching/ learning process for other categories of pupils with special needs shall follow current policies and procedures well as appropriate techniques and materials aids.

Teaching/Learning Techniques

This column consists of some recommendable teaching/learning techniques. Participatory or learner – centred techniques are proposed because they promote interaction and activity – based teaching and learning. Therefore, they enable the pupils to construct meaning from what they learn. Teachers are encouraged to read materials on participatory or learner – centred extensively. This will enable them to select the most suitable techniques to apply when teaching.

Materials/Aids

These are suggestions of teaching materials/aids for given topics/sub-topics. Textbooks and teacher's guides are among the essential textual materials. The teacher is encouraged to apply other suitable resources at his/her disposal. Moreover, it is advisable for teachers to improvise or make materials/aids for effective teaching/learning of a given topic/sub-topic. Similarly, pupils should be encouraged to improvise, design and make appropriate teaching/learning materials using inexpensive raw materials in their environment

Assessment

In this column suggestions about assessment of pupils' achievement of teaching/learning objectives are given. Assessment should be done on all instructional objectives. Varieties of ways of assessing should be applied and given daily, weekly, monthly, at the end of the term and at the end of the academic year.

Periods

This column shows the estimated number of periods for teaching a given topic. They are calculated on the basis of the number of days in the academic year (224) divided by the number of working days per week and multiplied by the number of periods per week. The total number of periods is further divided by the number of sub-topics in the syllabus to get the average number of periods per sub-topic. Twelve (12) periods are reserved for tests and examinations. However, the teacher may slightly adjust the estimated number of periods for a given topic or sub-topic depending on the needs of his/her class. Mathematics has been allocated Six (6) periods per week in each class.

From Monday to Thursday, during the morning shift, the duration of each period shall be 40 minutes. It shall be 35 minutes in the afternoon shift. On Fridays the duration of each period shall be 35 minutes only. The allocated time should be utilized fully. Lost instructional time should be compensated through the school's local arrangements.

PRINCIPAL SECRETARY
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ZANZIBAR

STANDARD FIVE

COMPETENCES

By the end of Standard V the pupils shall demonstrate the ability to:-

1. Write numbers correctly and use them in various mathematical operations.
2. Determine factors and multiples of different numbers.
3. Change bases of numbers and solve related problems.
4. Use fractions and apply arithmetic operations to solve fractional expressions.
5. Use mathematical instruments to draw and construct different figures and angles.
6. Make a calendar and use it to tell days and weeks.
7. Construct algebraic expressions and solve algebraic problems.
8. Use arithmetic operations to solve problems with decimal numbers.
9 Solve problems concerning areas and volumes of regular bodies.
10 Convert units and apply the four arithmetic operations to solve problems.
11. Calculate percentage loss and gain in mathematical problems.

OBJECTIVES

The objectives of teaching Mathematics subject in Standard V are to enable the pupils to:-

1. Acquire skills of writing numbers correctly and applying them in mathematical operations.
2. Understand factors and multiples of different numbers.
3. Develop skills of applying arithmetic operations to solve problems related to fractions..
4. Acquire skills of using mathematical instruments to draw and construct different figures and angles.
5. Acquire skills of constructing and using a calendar.
6. Understand the construction and solving algebraic equations.
7. Develop skills of solving problems concerning areas and volumes of regular bodies.
8. Acquire skills of drawing and interpreting tables, charts and graphs.
9. Acquire skills of using library and ICT facilities to get mathematical knowledge and skills.

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
1. WRITING NUMBERS a) Concept of place value.	The pupils should be able to: (i) Explain the concept of place value.	By using the short lecture technique, the teacher to guide pupils the explain the concept of place value.	1. Textbook. 2. Textbook in Braille notation.	Can the pupils explain the concept of place value?	5
	(ii) Identify the numbers in their place value.	By using the practice technique, the teacher to guide pupils to identify number in their place value.	1. Textbook. 2. Textbook in Braille notation.	Can the pupils identify the numbers in their place value?	
b) Writing Numbers in Words.	The pupil should be able to: (i) Write numbers in numerals.	By using the short lecture technique, the teacher to guide the pupils to convert the number in words into numerals.	1. Chart showing word numbers. 2. Tactile chart showing word numbers.	Can the pupil write numbers in numerals?	5
	(ii) Write numbers in words correctly.	1. By using the demonstration techniques the teacher to guide the pupils to write numbers in words. 2. By using the practice technique the teacher to guide the pupils to write number in words.	1. Chart showing word numbers. 2. Tactile chart showing word numbers. 3. Textbook. 4. Textbook in Braille notation.	Can the pupil write numbers in words correctly?	

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
c) Arithmetic Operations.	The pupil should be able to perform arithmetic operations in words.	1. By using the demonstration technique, the teacher to guide the pupils to perform arithmetic operations in words. 2. By using the practice technique, the teacher to guide the pupil to perform arithmetic operations in words.	1. Operations card. 2. Words number card. 3. Tactile cards of words number. 4. Textbook. 5. Textbook in Braille notation.	Can the pupil perform arithmetic operations in words?	4
2. TYPES OF NUMBERS a) Even Numbers.	The pupil should be able to: (i) Explain the meaning of even number.	By using the short lecture technique, the teacher to guide the pupils to explain the meaning of even number	1. Bottle caps. 2. Oranges. 3. Marbles.	Can the pupil explain the meaning of even number.	5

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
	(ii) Identify even numbers.	By using the demonstration technique, the teacher to guide the pupils to identify even numbers.	1. Bottle caps. 2. Oranges. 3. Marbles.	Can the pupil identify even numbers?	
b) Odd Numbers.	The pupil should be able to: (i) Explain the meaning of odd number.	1. By using the short lecture techniques the teacher to guide the pupils to explain the meaning of odd numbers.	1. Bottle caps. 2. Oranges. 3. Marbles.	Can the pupil explain the meaning of odd number?	5
	(ii) Identify odd numbers.	2. By using the demonstration techniques, the teacher to guide the pupils to identify odd numbers.	1. Bottle caps. 2. Oranges. 3. Marbles.	Can the pupil identify odd numbers?	
c) Prime Numbers	The pupil should be able to: (i) Explain the meaning of prime number.	1. By using the short lecture technique, the teacher to guide the pupils to explain the meaning of prime number.	1. Bottle caps. 2. Oranges. 3. Glass balls. 4. Textbook. 5. Textbook in Braille notation.	Can the pupil explain the meaning of prime number?	5

TOPICS SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
	(ii) Identify prime numbers.	2. By using the demonstration technique, the teacher to guide the pupils to identify prime numbers.	1. Bottle caps. 2. Oranges. 3. Marbles.	Can the pupil identify prime numbers?	
d) Composite Numbers.	The pupil should be able to: (i) Explain the meaning of composite number.	1. By using the short lecture technique, the teacher to guide the pupils to explain the meaning of composite number.	1. Bottle caps. 2. Oranges. 3. Marbles.	Can the pupil explain the meaning of composite number?	5
	(ii) Identify composite numbers.	2. By using the demonstration technique, the teacher to guide the pupils to identify composite numbers.	1. Bottle caps. 2. Oranges. 3. Marbles.	Can the pupil identify composite numbers?	
3. FACTORS a) Meaning of Factor.	The pupil should be able to explain the meaning of factor.	By using the short lecture technique, the teacher to guide the pupils to explain the meaning of factor.	1. Charts showing factors of numbers. 2 Tactile charts showing factors of numbers.	Can the pupil explain the meaning of factor?	4

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
b) Arithmetic Operations Involving Factors.	The pupil should be able to: (i) Identify factors from arithmetic operations.	By using the observation technique, the teacher to guide the pupils to identify factors from arithmetic operations.	1. Charts showing factors of numbers. 2. Tactile charts showing factors of numbers.	Can the pupil identify factors from arithmetic operations?	6
	(ii) Perform operations involving factors.	1. By using the demonstration technique, the teacher to guide the pupils to perform arithmetic operations involving factors. 2. By using practice technique, pupils to perform operation involving factors.	1. Charts showing operations involving factors. 2. Tactile charts showing operations involving factors.	Can the pupil perform arithmetic operations involving factors?	
c) Problems Involving Factors.	The pupil should be able to solve problems involving factors.	1. By using the group work practise technique, the teacher to guide the pupils to solve problems involving factors. 2. By using the question and answers technique, the teacher to guide the pupils to solve problems involving factors.	1. Charts showing problems involving factors. 2. Tactile charts showing problems involving factors.	Can the pupil solve problems involving factors?	6

TOPICS/ SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
4. MULTIPLES. a) Meaning of Multiples.	The pupil should be able to explain the meaning of multiples of numbers.	By using the short lecture technique, the teacher to guide the pupils to explain the meaning of multiples.	1. Charts showing multiple of numbers. 2. Tactile charts showing multiple of numbers.	Can the pupil explain the meaning of multiples?	4
b) Operations involving Multiples.	The pupil should be able to: (i) Identify multiples of numbers.	By using the demonstration technique, the teacher to guide the pupils to identify multiple of numbers.	1. Beans. 2. Number chart. 3. Tactile chart of numbers.	Can the pupil identify multiples of numbers?	6
	(ii) Perform operations involving multiples.	1. By using demonstration technique, the teacher to guide the pupils to perform operations involving multiples. 2. By using the practice technique, the teacher to guide the pupils to perform operations involving multiples.	1. Charts of number. 2. Tactile charts of numbers. 3. Textbook. 4. Textbooks in Braille notation.	Can the pupil perform operations involving multiples?	

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
c) Problems involving Multiples.	The pupil should be able to solve problems involving multiples.	1. By using the demonstration technique, the teacher to guide the pupils to solve problems involving multiples. 2. By using the group work practice technique, the teacher to guide the pupils to solve problems involving multiples.	1. Number chart. 2. Number cards. 3. Tactile charts of numbers. 4. Tactile cards of numbers.	Can the pupil solve problems involving multiples?	5
5. FRACTIONS a) Types of Fractions.	The pupil should be able to explain types of fractions.	By using the discussion technique, the teacher to guide the pupils in small groups to explain the types of fractions.	1. Chart showing fractions. 2. Tactile charts showing fractions.	Can the pupil explain types of fractions?	5
b) The rule of "BODMAS"	The pupil should be able to: (i) State the rule of "BODMAS"	By using the short lecture technique, the teacher to guide the pupils to state the rules of "BODMAS"	1. Chart showing fractions. 2. Tactile chart showing fractions.	Can the pupil state the rule of "BODMAS"?	5

NB: "**BODMAS** = **B**racket **O**f **D**ivision, **M**ultiplication, **A**ddition, **S**ubtraction"

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
	(ii) Apply the rule of "BODMAS" to solve mathematical problems.	By using the group work practise technique, the teacher to guide the pupils to solve mathematical problems involving the rule of "BODMAS"	1. Chart showing fractions. 2. Tactile chart showing fractions. 3. Textbook. 4. Textbook in Braille notation.	Can the pupil apply the rule of "BODMAS" to solve mathematical problems?	
6. DECIMALS a) Meaning of Decimal.	The pupil should be able to explain the meaning of decimal.	By using the short lecture technique, the teacher should guide students to explain the meaning of decimal.	1. Chart showing algebraic expressions in decimals. 2. Tactile chart showing algebraic expressions in decimals.	Can the pupil explain the meaning of decimal?	3
b) Arithmetic Operations Involving Decimals.	The pupil should be able to perform calculations involving decimals.	1. By using the demonstration technique, the teacher should guide pupils to perform calculations involving decimals. 2. By using individual practice technique, the teacher to guide pupils to perform calculations involving decimals.	1. Chart showing algebraic expressions in decimals. 2. Tactile chart showing algebraic expression in decimals.	Can the pupil perform calculations involving decimals?	6

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
c) Changing Fractions into Decimals and Percentages.	The pupil should be able to: (i) Change fractions into decimals.	1. By using the demonstration technique, the teacher to guide the pupils to change fractions into decimals. 2. By using the group work practise technique, the teacher to guide the pupils to change fractions into decimals.	1. Chart showing change of fraction into decimals. 2. Tactile chart showing change of fractions into decimals.	Can the pupil change fractions into decimals?	7
	(ii) State the meaning of percentage.	By using the short lecture technique, the teacher to guide pupils to state the meaning of percentage.	1. Textbook. 2. Textbook in Braille notation.	Can the pupils state the meaning of percentage?	
	(iii) Change fractions into percentages.	1. By using the demonstration technique the teacher to guide the pupils to change fractions into percentages. 2. By using the individual work practise technique, the teacher to guide the pupils to change percentages into decimals.	1. Chart showing a change of fractions into percentages. 2. Tactile chart showing change of fractions into percentages. 3. Textbook. 4. Textbook in Braille notation.	Can the pupil change fractions into percentages?	

TOPICS SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
7. PERCENTAGE LOSS AND GAIN a) Meaning of Percentage Loss and Percentage Gain.	The pupil should be able to: (i) Explain the meaning of percentage loss.	By using the short lecture technique the teacher to guide pupils to explain the meaning of percentage loss.	1. Textbook. **2.** Textbook in Braille notation.	Can the pupil explain the meaning of percentage loss?	6
	(ii) Explain the meaning of percentage gain.	By using the short lecture technique, the teacher to lead pupils to explain the meaning of percentage gain.	1. Textbook. 2. Textbook in Braille notation.	Can the pupil explain the meaning of percentage gain?	
b) Calculations Involving Percentage Loss and Gain.	The pupil should be able to solve problems involving percentage loss and gain.	1. By using the demonstration technique, the teacher to lead pupils to solve problems involving percentage loss and gain. 2. By using the pair and group work practice technique, the teacher to lead pupils to solve problems involving percentage loss and gain.	1. Textbook. 2. Textbook in Braille notation.	Can the pupil solve problems involving percentage loss and gain?	5

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
8. BASE a) Meaning of Bases of Numbers.	The pupils should be able to explain the meaning of bases of numbers.	By using the short lecture technique, the teacher to guide the pupils to explain the meaning of bases of numbers.	1. Number charts. 2. Tactile charts of numbers	Can the pupils explain the meaning of bases of numbers?	4
b) Change of Bases	The pupils should be able to change numbers from one base to another.	1. By using the demonstration technique, the teacher to guide the pupils to change numbers from one base to another. 2. By using practice technique, the teacher to guide the pupils to change numbers from one base to another.	1. DVD/CDs 2. Chart showing bases. 3. Textbook. 4. Textbook in Braille notation.	Cab the pupil change numbers from one base to another?	8
c) Arithmetic Operations involving Bases.	The pupil should be able to perform operations involving bases.	1. By using the demonstration techniques, the teacher to guide the pupils to perform operations involving bases. 2. By using the practice technique, the teacher to guide the pupils to perform operations involving bases.	1. Number charts. 2. Tactile charts of numbers.	Can the pupil perform operations involving bases?	5

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
9. ANGLES a) Type of Angles.	The pupils should be able to identify types of angles.	By using the question and answers technique, the teachers to guide pupils to identify types of angles.	1. Textbook. 2. Textbook in Braille notation	Can the pupils identify types of angles?	4
b) Calculations involving Angles.	The pupil should be able to solve problems involving angles on a straight line.	1. By using the demonstration technique, the teacher to guide the pupils to solve problems involving angles on a straight line. 2. By using the group work practise technique, the teacher to guide the pupils to solve problems involving angles on a straight line.	1. Chart showing angles formed on a straight line. 2. Tactile chart showing angles formed on a straight line.	Can the pupil solve problems involving angles on the straight line?	5
10. TRIANGLES a) Types of Triangles.	The pupil should be able to describe types of triangles.	1. By using the short lecture technique, the teacher to guide the pupils to explain the meaning of triangles. 2. By using the demonstration technique, the teacher to guide the pupils to describe types of triangles.	1. Charts showing angles formed on a triangle. 2. Tactile charts showing angles formed on a triangle. 3. Textbook. 4. Textbook in Braille notation.	Can the pupil describe types of triangles?	4

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
b) Construction of Triangles.	The pupil should be able to construct different types of triangles by using mathematical tools.	1. By using the demonstration technique the teacher to guide the pupils to construct special types of triangles. 2. By using the graphic organizer technique, the teacher to guide the pupils to construct different types of triangles by using mathematical tools.	1. Ruler. 2. Protractor. 3. Drawing compass. 4. Set square. 5. Textbook. 6. Textbook in Braille notation	Can the pupil construct different types of triangles using mathematical tools?	5
11. LENGTH. a) Meaning of Perimeter.	The pupil should be able to explain the meaning of perimeter.	By using the short lecture technique, the teacher to guide the pupils to explain the meaning of perimeter.	1. Thread. 2. Paper. 3. Pin. 4. Pencil. 5. Scissors/blade. 6. Real environment.	Can the pupil explain the meaning of perimeter?	4
b) Units of Perimeter.	The pupils should be able to state the unit of perimeter.	By using the question and answers technique, the teacher to guide pupils to state the units of perimeter.	1. Textbook. 2. Textbook in Braille notation	Can the pupils state the unit of perimeter?	4
c) Calculations Involving Perimeter.	The pupil should be able to solve problems involving perimeter.	1. By using the demonstration technique, the teacher to guide the pupils to solve problems involving perimeters. 2. By using individual practice technique, the teacher to guide pupils to solve problems involving perimeters.	1. Textbook. 2. Textbook in Braille notation.	Can the pupil solve problems involving perimeter?	5

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
12. CIRCLES a) Meaning of Circles.	The pupil should be able to explain the meaning of a circle.	By using the short lecture technique, the teacher to guide the pupils to explain the meaning of a circle.	1. Ball. 2. Ring.	Can the pupil explain the meaning of a circle?	4
b) Diameter, Radius, Arc and Sector of a Circle.	The pupil should be able to: i) Describe the terms diameter, radius, arc and sector of a circle.	1. By using the drawing technique, the teacher to guide the pupils to describe the terms diameter, radius, arc and sector of a circle. 2. By using the group work technique, the teacher to guide the pupils to draw the diameter, radius, arc and sector of a circle.	1. Pencil. 2. Compass. 3. Ruler. 4. Tactile chart of a circle showing diameter, radius, arc, and sector. 5. Chart of a circle showing diameter, radius, arc and sector. 6. Textbook. 7. Textbook in Braille notation.	Can the pupil describe the terms diameter, radius, arc and sector of a circle?	6

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
	ii) Measure the diameter of various circular bodies.	1. By using the demonstration technique, the teacher to guide pupils to measure the diameter of various circular bodies. 2. By using the practice technique, the teacher to guide pupils to measure the diameter of circular bodies.	1. Circular body. 2. String. 3. Ruler. 4. Vanier calliper. 5. Micrometer screw gauge.	Can the pupils measure diameter of various circular bodies?	
c) Meaning of circumference	The pupils should be able to : (i) Explain the meaning of circumference.	By using the short lecture technique, the teacher to guide the pupils to explain the meaning of a circumference.	1. Chart that shows the circumference. 2. Ruler. 3. String. 4. Circular shaped bodies. 5. Tactile chart showing circumference.	Can the pupils explain the meaning of a circumference?	6
	(ii) Measure the circumference of various circular bodies	By using the demonstration technique, the teachers to guide the pupils to measure circumference of various circular bodies.	1. Chart showing circumference. 2. Ruler. 3. String. 4. Circular body. 5. Tactile chart showing circular bodies.		

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
d) Concept of pie (π).	The pupils should be able to: (i) Determine the relationship between the circumference and diameter of a circle.	By using the project technique, the teacher to guide the pupils to determine the relationship between circumference and diameter of a circle.	1. Chart showing circumference. 2. Ruler. 3. String. 4. Circular body. 5. Tactile chart showing a circular bodies.	Can the pupils determine the value of pie?	5
	(ii) Determine the value of pie.	By using group work practice technique, the teacher to guide the pupils to determine the value of pie.	1. Ruler. 2. Mathematical set. 3. Braille machine.	Can the pupils determine the value of pie?	
e) Calculations Involving Circumference	The pupils should be able to solve problems involving circumference	By using the group work practice technique, the teacher to guide the pupils to solve problems involving circumference.	1. Chart showing circumference. 2. Ruler. 3. String. 4. Circular body. 5. Tactile chart showing a circular bodies.	Can the pupils solve problems involving circumference.	5
13. AREA a) Area of a Triangle	The pupil should be able to calculate the area of a triangle.	1. By using the demonstration technique, the teacher to guide the pupils to determine the formula of the area of the triangle. 2. By using the group work technique, the teacher to guide the pupils to calculate the area of a triangle	1. Chart of triangle. 2. Compass. 3. Ruler. 4. Manila paper. 5. Tactile chart of triangle. 6. Pairs of scissors	Can the pupil calculate the area of a triangle?	5

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
b) Area of a Trapezium.	The pupil should be able to: (i) Explain the meaning of trapezium.	By using the short lecture technique, the teacher to guide the pupils to explain the meaning of the term trapezium.	1. Set square. 2. Ruler. 3. Tactile chart of trapezium. 4. Chart of trapezium.	Can the pupil explain the meaning of trapezium?	5
	(ii) Calculate the area of a trapezium.	1. By using the demonstration, the teacher to guide the pupils to determine the formula for the area of trapezium. 2. By using the individual work technique, the teacher to guide the pupils to calculate the area of trapezium.	1. Chart of a trapezium. 2. Tactile chart of a trapezium. 3. Textbook. 4. Textbook in Braille notation.	Can the pupil calculate the area of a trapezium?	
c) Area of a Parallelogram.	The pupil should be able to: (i) Explain the meaning of a parallelogram.	By using the short lecture technique, the teacher to guide the pupils to explain the meaning of a parallelogram.	1. Chart of a parallelogram 2. Tactile chart of a parallelogram.	Can the pupil explain the meaning of a parallelogram?	5

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
	(ii) Calculate the area of a parallelogram.	1. By using the demonstration technique, the teacher to guide the pupils to determine the formula of the area of a parallelogram. 2. By using the individual practice technique, the teacher to guide the pupils to calculate the area of a parallelogram.	1. Labelled chart of parallelogram. 2. Tactile chart of parallelogram. 3. Textbook. 4. Textbook in Braille notation.	Can the pupil calculate the area of a parallelogram?	
14. VOLUME a) Meaning of Volume.	The pupil should be able to explain the meaning of volume.	By using the short lecture technique, the teacher to guide the pupils to explain the meaning of volume.	1. Manila paper. 2. Glue. 3. Models of volume (box and container).	Can the pupil explain the meaning of volume?	4
b) Units of Volume	The pupils should be able to state the units of volume.	By using the library reading technique, the teacher to guide pupils to conduct library reading to state the units of volume.	1. Books. 2. Books in Braille notation.	Can the pupils state the units of volume?	4

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
c) Volume of Cubes and Prisms.	The pupil should be able to: (i) Draw diagrams of cubes and prisms.	By using the drawing technique, the teacher to guide the pupils to draw the diagrams of cubes and prisms.	1. Manila paper. 2. Ruler. 3. Models of volume of prism objects.	Can the pupil draw diagrams of cubes and prisms?	8
	(ii) Find the volume of cubes and prisms.	1. By using the demonstration technique, the teacher to guide pupils to determine the formula for volume of cubes and prisms. 2. By using the individual practice technique, the teacher to guide the pupils to find the volumes of cube and prisms.	1. Ruler. 2. Cuboid and prism objects. 3. Textbook. 4. Textbook in Braille notation.	Can the pupil find the volume of cube and prisms?	
15. CONVERSION OF UNITS a) Conversion of Units of Length.	The pupil should be able to change one unit of length into another.	By using the quiz technique, the teacher to guide the pupils to change one unit of length into another.	1. Chart of length. 2. Chart of length in Braille.	Can the pupil change one unit of length into another?	5
b) Conversion of Units of Mass.	The pupil should be able to change one unit of mass into another.	By using the question and answer technique, the teacher to guide the pupils to change one unit of mass into another.	1. Charts of mass. 2. Chart of mass in Braille.	Can the pupil change one unit of mass into another?	5

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
16. CALENDAR. a) Meaning of Calendar.	The pupil should be able to explain the meaning of calendar:	By using the short lecture technique the teacher to guide the pupils to explain the concept of the calendar.	1. Actual Calendar. 2. Calendar in Braille.	Can the pupil explain the meaning of calendar?	4
b) Use of Calendar.	The pupil should be able to use a calendar in daily life.	1. By using the question and answer technique, the teacher to guide the pupils to use calendar in daily life. 2. By using the practice technique, teacher to lead pupils to use a calendar.	1. Actual Calendar. 2. Calendar in Braille. 3. Textbook. 4. Textbook in Braille notation.	Can the pupil use calendar in daily life?	4
17. ALGEBRA a) Arithmetic Operations in Algebraic Expressions.	The pupil should be able to perform arithmetic operations involving algebraic expressions.	1. By using the short lecture technique, the teacher to guide the pupils to explain the concept of algebraic expression. 2. By using the group work technique, the teacher to guide the pupils to perform arithmetic operation in algebraic expressions.	1. Chart showing algebraic expressions. 2. Tactile chart showing algebraic expressions.	Can the pupil perform arithmetic operations involving algebraic expressions?	5
b) Solving Algebraic Expressions and Equations.	The pupil should be able to solve algebraic equations.	1. By using the demonstration technique, the teacher to lead pupils to explain the concept of algebraic equation. 2. By using the quiz technique, the teacher to guide the pupils to solve algebraic equations.	1. Chart of algebraic equations. 2. Tactile chart of algebraic equations. 3. Textbook. 4. Textbook in Braille notation.	Can the pupil solve algebraic equations?	7

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
18. RATIO a) Meaning of Ratio.	The pupil should be able to explain the meaning of ratio.	By using the short lecture technique, the teacher to guide the pupil to explain the meaning of ratio.	1. Chart showing ratios. 2. Tactile chart showing ratios.	Can the pupil explain the meaning of ratio?	4
b) Solving Problems involving Ratios.	The pupil should be able to solve problems involving ratios.	1. By using the question and answers technique, the teacher to guide the pupil to solve problems involving ratios. 2. By using the practice technique, the teacher to guide the pupils to solve problems involving ratios.	1. Chart showing ratios. 2. Tactile chart showing ratios. 3. Textbook. 4. Textbooks in Braille notation.	Can the pupil solve problems involving ratios?	6
19. GRAPHS AND CHARTS a) Meaning of Graph and Chart.	The pupil should be able to explain the meaning of graph and chart.	1. By using the short lecture technique the teacher to guide the pupils to explain the meaning of graph and chart. 2. By using the question and answers technique, the teacher to lead pupils to explain the meaning of graph and chart.	1. Paper. 2. Ruler. 3. Protector 4. Drawing Compass. 5. Set square. 6. Braille machine. 7. DVD/CDs. 8. Textbook. 9. Textbook in Braille notation.	Can the pupil : 1. Explain the meaning of graph? 2. Explain the meaning of chart?	4

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
b) Tables and Histograms.	The pupil should be able to: (i) Construct tables and histograms.	By using the graphic organizer technique, the teacher to guide the pupils to construct tables and histograms.	1. Ruler. 2. Protector. 3. Drawing compass. 4. Set square. 5. Braille machine.	Can the pupil construct tables and histograms?	6
	(ii) Solve problems involving tables and histograms.	By using the group work technique, the teacher to guide the pupils to solve problems involving tables and histograms.	1. Charts showing histograms and tables. 2. Tactile chats showing tables and histograms.	Can the pupil solve problems involving tables and histograms?	

STANDARD SIX

COMPETENCES

By the end of Standard VI the pupils shall demonstrate ability to:-

1. Solve mathematical problems involving numbers.
2. Determine the lowest common multiples (LCM) and the highest common factors (HCF).
3. Change fractions into decimals and percentages and vice –versa.
4. Solve problems concerning averages.
5. Solve algebraic equations.
6. Change local currency into foreign currency and vice versa.
7. State and calculate different angles formed between parallel and transversal lines and intersecting lines.
8. Discuss the concept of proportionality and solve related problems.
9. Draw and interpret graphs and charts from data.
10. Convert units and apply the four arithmetic operations to solve problems.
11. Solve problems concerning simple interest.
12. Apply library and ICT skills in order to acquire mathematical skills and knowledge.

OBJECTIVES

The objectives of teaching Mathematics in Standard VI are to enable the pupils to:

1. Understand the applications of negative and positive numbers as well as base of numbers in solving related problems.
2. Acquire skills of changing fractions into decimals and percentages and vice versa.
3. Get skills of solving problems concerning averages, proportions and algebraic equations.
4. Understand the changing of local currency into foreign currency and vice versa.
5. Develop skills of stating and calculating different angles between parallel, transversal and intersecting lines.
6. Acquire skills of drawing and interpreting charts and graphs.
7. Understand the calculations of simple interest.
8. Acquire skills of using library and ICT facilities to get mathematical knowledge and skills.

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
1. TYPES OF NUMBERS Arithmetic Operations involving Negative and Positive Numbers integers.	The pupil should be able to perform arithmetic operations involving negative and positive numbers.	1. By using the demonstration technique, the teacher to guide the pupils to perform arithmetic operations involving negative and positive numbers. 2. By using the quiz technique, the teacher to guide the pupils to perform arithmetic operations involving negative and positive numbers.	1. Rulers. 2. Graph papers. 3. Chart showing positive and negative numbers. 4. Tactile chart showing positive and negative numbers. 5. Textbook. 6. Textbook in Braille notation.	Can the pupil perform arithmetic operations involving negative and positive numbers?	6
2. FACTORS a) Exponent of Two and Three.	The pupil should be able to: (i) Explain the meaning of exponent.	By using the short lecture technique, the teacher to guide the pupils to explain the meaning of exponent.	1. Charts which shows the exponent of numbers. 2. Tactile chats showing exponent of numbers. 4. Textbook. 5. Textbook in Braille notation.	Can the pupil explain the meaning of exponent?	8

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
	(ii) Solve problems involving exponent of two and three.	1. By using the demonstration technique, the teacher to guide the pupils to solve problems involving exponent of two and three. 2. By using the group work practice technique, the teacher to guide the pupils to solve problems involving exponent of two and three.	1. Charts showing the exponent of two and three. 2. Tactile chart showing exponent of two. 3. Textbook. 4. Textbook in Braille notation.	Can the pupil solve problems involving exponent of two and three.?	
b) Squares and Cubes.	The pupil should be able to: (i) Solve problems on squares.	By using the demonstration technique, the teacher to guide the pupils to solve problems on squares.	1. Chart showing squares of numbers. 2. Manila paper. 3. Tactile chart showing squares of numbers. 4. Textbook. 5. Textbook in Braille notation.	Can the pupil solve problems on squares?	12

TOPICS/ SUB-TOPIC	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
	(ii) Solve problems on cubes.	By using group work practice technique, the teacher to guide the pupils to solve problems on cubes.	1. Chart showing cubes of numbers. 2. Tactile chart showing cubes of numbers.	Can the pupil solve problems on cubes?	
c) H.C.F.	The pupil should be able to: (i) Explain the meaning of H.C.F.	By using short lecture technique the teacher to guide the pupils to explain the meaning of H.C.F.	1. Multiplication table. 2. Multiplication table in Braille. 3. Chart showing factors of numbers. 4. Tactile chart showing factors of numbers. 5. Textbook. 6. Textbook in Braille notation.	Can the pupil explain the meaning of H.C.F?	8
	(ii) Find the H.C.F. of two numbers.	By using the group work practice technique, the teacher to guide the pupils to find H.C.F. of two numbers.	1. Multiplication table. 2. Multiplication table in Braille. 3. Chart showing factors of numbers. 4. Tactile chart showing factors of numbers.	Can the pupil find the H.C.F. of two numbers?	

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
3. MULTIPLES a) L.C.M.	The pupil should be able to: (i) Explain the meaning of L.C.M.	By using the short lecture technique, the teacher to guide the pupils to explain the meaning of L.C.M.	1. Multiplication table. 2. Chart showing factors of numbers. 3. Multiplication table in Braille. 4. Tactile chart showing factors of numbers.	Can the pupil explain the meaning of L.C.M.?	8
	(ii) Find the L.C.M. of two numbers.	1. By using the demonstration technique, the teacher to guide the pupils to find L.C.M. of two numbers. 2. By using the group work technique, the teacher to guide the pupils to find L.C.M. of two numbers.	1. Multiplication table. 2. Chart showing factors of numbers. 3. Multiplication table in Braille. 4. Tactile chart showing factors of numbers. 5. Textbook. 6. Textbook in Braille notation.	Can the pupil find the L.C.M of two numbers?	
b) Square Roots and Cube Roots.	The pupil should be able to: (i) Explain the meaning of square root and cube root.	By using the short lecture technique, the teacher to guide the pupils to explain the meaning of square root and cube roots.	1. Chart which shows the square roots of numbers. 2. Chart showing cube-roots of numbers 3. Tactile chart showing square-roots of numbers. 4. Tactile chart showing cube roots of numbers.	Can the pupil explain the meaning of square root and cube root?	12

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
	(ii) Solve problem on square roots and cube roots.	1. By using the demonstration technique, the teacher to guide the pupils to solve problems on square roots and cube roots. 2. By using the group work practice technique, the teacher to guide the pupils to solve problems on square roots and cube roots.	1. Chart showing the square-roots of numbers. 2. Chart showing the cube-roots of numbers. 3. Tactile chart showing square-roots of number. 4. Tactile chart showing cube roots of numbers. 5. Textbook. 6. Textbook in Braille notation.	Can the pupil solve problems on square roots and cube roots?	
4. FRACTIONS Changing Decimals and Percentages into Fractions.	The pupil should be able to: (i) Change decimals into fractions.	1. By using the demonstration technique, the teacher to guide the pupils to change decimals into fractions. 2. By using the individual practice technique, the teacher to guide the pupils to change decimals into fractions.	1. Chart showing decimals and fractions. 2. Tactile chart showing decimals and fractions. 3. Textbook. 4. Textbook in Braille notation.	Can the pupil change: 1. Decimals into fractions? 2. Percentage into fractions.	8

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
	(ii) Change percentages into fractions.	1. By using the demonstration technique, the teacher to guide pupils to change percentages into fraction. 2. By using the practice technique, the teacher to guide pupils to change percentages into fractions.	1. Textbook. 2. Textbook in Braille notation.	Can the pupils change percentages into fractions?	
5. PARALLEL AND INTERSECTING LINES a)Meaning of Parallel and Transversal Lines.	The pupil should be able to: (i) Explain the meaning of parallel and transversal lines.	By using the short lecture technique, the teacher to guide the pupils to explain the meaning of parallel and transversal lines.	1. Chart showing parallel and transversal lines. 2. Tactile chart showing parallel and transversal lines. 3. Textbook. 4. Textbook in Braille notation.	Can the pupil explain the meaning of parallel and transversal lines?	8
	(ii) Draw parallel and transversal lines.	By using the drawing technique, the teacher to guide the pupils to draw the parallel and transversal lines.	1. Ruler. 2. Manila sheet. 3. Marker pen. 4. Braille machine.	Can the pupil draw parallel and transversal lines?	

TOPICS SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
b) Angles between Parallel and Transversal lines.	The pupil should be able to: (i) Identify the names of the angles formed by parallel and transversal lines.	By using the short lecture technique, the teacher to guide the pupils to identify the names of the angles formed by parallel and transversal lines.	1. Textbook. 2. Textbooks in Braille notation.	Can the pupil identify the names angles formed by parallel lines?	12
	(ii) State the properties of angles formed by parallel and transversal lines.	By using the group discussion technique, the teacher to guide the pupils to state the properties of angles formed by parallel and transversal line.	1. Ruler. 2. Protractor. 3. Compass. 4. Braille machine. 5. Textbook. 6. Textbook in Braille notation.	Can the pupil state the properties of angles formed by parallel and transversal lines?	
	(iii) Solve problems on angles formed by parallel and transversal lines.	By using the group work practice techniques, the teacher to guide the pupils to solve problems on angles formed by parallel and transversal lines.	1. Ruler. 2. Protractor. 3. Compass. 4. Braille machine.	Can the pupil solve problems on angles formed by parallel and transversal lines?	

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
(c) Angles in Intersecting Lines.	(i) Draw intersecting lines.	By using the drawing technique, the teacher to guide pupils to draw the intersecting lines.	1. Ruler. 2. Manila sheet. 3. Marker pen. 4. Braille machine.	Can the pupils draw intersecting lines?	10
	(ii) Identify the types of angles in intersecting lines.	By using the demonstration technique, the teacher to guide the pupils to identify the types of angles in intersecting lines.	1. Ruler. 2. Protectors. 3. Compass. 4. Braille machine. 5. Textbook. 6. Textbook in Braille notation.	Can the pupil identify the types of angles in intersecting lines?	
	The pupils should be able to: (iii) State the properties of angles in intersecting lines.	By using the short lecture technique, the teacher to guide the pupils to state the properties of angles in intersecting lines.	1. Charts showing angles in intersecting lines. 2. Ruler. 3. Protector. 4. Tactile chart showing angles in intersecting line. 5. Braille machine.	Can the pupil state the properties of angles in intersecting lines?	

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
	(iv) Solve problems on angles between parallel and intersecting lines.	By using the group work practice technique, teacher to guide the pupils to solve problems on angles between intersecting lines.	1. Ruler. 2. Protectors. 3. Compass. 4. Braille machine. 5. Textbook. 6. Textbook in Braille notation.	Can the pupil solve problems on angles between parallel and intersecting lines?	
6. TRIANGLES Calculations Involving Triangles.	The pupil should be able to (i) State the angle properties of a triangle.	By using the short lecture technique, the teacher to guide the pupils to state the angle properties of a triangle.	1. Chart which shows the figure of triangle. 2. Compass. 3. Protractors. 4. Braille machine.	Can the pupil state the angle properties of a triangle?	8
	(ii) Calculate the angles of a triangle.	1. By using the demonstration technique the teacher to guide the pupils to calculate angles of a triangle. 2. By using the group work practice technique, the teacher to guide the pupils to calculate angles of a triangle.	1. Compass. 2. Protractors. 3. Ruler. 4. Braille machine. 5. Textbook. 6. Textbook in Braille notation.	Can the pupil calculate the angles of a triangle?	

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
7. AREA a) Area of a Circle	The pupil should be able to find the area of a circle.	1. By using the demonstration technique, the teacher to guide pupils to give the relationship between diameter, length and area of the circle. 2. By using the group work practice technique, the teacher to guide pupils to find the area of a circle.	1. Chart showing a circular object. 2. Ruler. 3. String. 4. Tactile chart showing a circular and a cylindrical objects. 5. Braille machine. 6. Circular body 7. Textbook. 8. Textbook in Braille notation.	Can the pupil find the area of a circle and a cylinder?	8
b) Area of Cylinder.	The pupils should be able to find the area of a cylinder.	1. By using the demonstration technique, the teacher guide pupils to give the relationship between, radius, length and area of the cylinder. 2. By using the practice technique, the teacher to guide the pupils to find the area of the cylinder.	1. Textbook. 2. Textbook in Braille notation.	Can the pupil find the area of a cylinder.	8

TOPICS / SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
b) Area of a Sphere.	The pupils should be able to calculate the area of a sphere.	1. By using the demonstration technique, the teacher to guide pupils determine the formula of the area of the sphere. 2. By using the group work practice technique, the teacher to guide pupils to find the area of a sphere.	1. Spherical body. 2. Ruler. 3. String. 4. Braille machine. 5. Textbook. 6. Textbook in Braille notation.	Can the pupil calculate the area of a sphere?	8
8. VOLUME Calculations Involving Volume of Cylinders and Spheres.	The pupil should be able to solve problems involving the volume of cylinders and spheres.	1. By using the demonstration technique, the teacher to guide the pupils to solve problems involving volume of cylinder and spheres. 2. By using the group work practice technique, the teacher to guide the pupils to solve problems involving volume of cylinder and spheres.	1. Cylindrical body. 2. Spherical body. 3. Textbook. 4. Textbook in Braille notation.	Can the pupil: 1. Solve problems involving the volume of cylinders? 2. Solve problems involving the volume of spheres?	10

TOPICS SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
9. CONVERSION OF UNITS a) Conversion of Units of Volume and Capacity.	The pupil should be able to: (i) Explain the meaning of volume and capacity.	By using the short lecture technique, the teacher to guide the pupils to explain the meaning of volume and capacity.	1. Box. 2. Classroom. 3. Cylindrical tins. 4. Ruler. 5. Braille machine. 6. Textbook. 7. Textbook in Braille notation.	Can the pupil explain the meaning of volume and capacity?	8
	(ii) Change one unit of volume and capacity into another.	By using the demonstration technique, the teacher to guide the pupils to change one unit of volume and capacity into another.	1. Charts which shows units of volumes and capacity 2. Tactile charts showing units of volumes and capacity.	Can the pupil change one unit of volume and capacity into another?	
b) Conversion of Unit of Time.	The pupil should be able to change one unit of time to another.	1. By using the demonstration technique, the teacher to guide the pupils to change one unit of time to another. 2. By using the written exercise technique the teacher to guide the pupils to change one unit of time to another.	1. Stop watch. 2. Chart showing conversion of units of time. 3. Tactile chart showing conversion of units of time	Can the pupil change one unit of time to another?	8

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
10. SIMPLE INTEREST a) Meaning of Simple Interest.	The pupils should be able to: (i) Explain the meaning principal.	By using the short lecture technique, the teacher to guide pupils to explain the meaning of principal.	1.Textbook. 2. Textbooks in Braille notation.	Can the pupils explain the meaning of principal.	8
	(ii) Explain the meaning of rate.	By using the short lecture technique, the teacher to guide pupils to explain the meaning of rate.	1.Textbook. 2. Textbook in Braille notation.	Can the pupils explain the meaning the rates?	
	(iii) Explain the meaning of t time with respect to simple interest.	By using the short lecture technique, the teacher to guide pupils to explain the meaning of time with respect to simple interest.	1Textbook. 2. Textbook in Braille notation.	Can the pupils explain the meaning of time with respect to simple interest?	
	(iv) Explain the meaning of simple interest.	By using the short lecture technique, the teacher to guide the pupils to explain the meaning of simple interest.	1. Chart showing simple interest. 2. Tactile chart showing simple interest.	Can the pupils explain the meaning of simple interest?	

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
b) Calculations Involving Simple Interest.	The pupils be able to solve problems involving simple interest.	1. By using the demonstration technique, the teacher to guide the pupils to explain the meaning of simple interest . 2. By using the group work technique, the teacher to guide the pupils to solve problems involving simple interest.	1. Chart showing simple interest. 2. Tactile chart showing simple interest.	Can the pupils solve problems involving simple interest?	8
11. CURRENCY EXCHANGE a) Foreign Currency.	The pupil should be able to identify some common foreign currencies.	1. By using the short lecture technique, the teacher to guide the pupils to identify some common foreign currencies. 2. By using the question and answers technique, the teacher to guide the pupils to identify some common foreign currencies.	1. Samples of common foreign currencies (US – dollar, Pound Sterling, Euro). 2. Textbook. 3. Textbook in Braille notation.	Can the pupil identify some common foreign currencies?	5
b) Foreign Exchange.	The pupil should be able to: (i) Explain the differences in rates of exchange of foreign currencies.	1. By using the demonstration technique, the teacher to guide the pupils to explain the differences in rates of foreign exchange. 2. By using study visit technique, the teacher to guide students to visit a bank or bureau de change to observe different rates of the named foreign currencies.	1. Chart showing the different rates of exchange of foreign currencies. 2. Tactile chart showing rates of exchange of foreign currencies.	Can the pupil explain the differences in rates of exchange of foreign currencies?	8

TOPICS / SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
	(ii) Use exchange rates to change currency.	By using study visit technique, the teacher to guide students to visit a bank or bureau de change to learn how to change currency.	1. Chart showing different rates of exchange of foreign currencies. 2. Tactile chart showing different rates of exchange of foreign currencies.	Can the pupil use exchange rates to change currency?	
12. CALENDAR Construction of a Calendar.	The pupil should be able to: (i) Identify items in the calendar.	By using the question and answers technique, the teacher to lead pupils to identify items in calendar.	1. Calendar. 2. Chart showing calendar. 3. Tactile chart showing a calendar. 4. Textbook. 5. Textbook in Braille notation.	Can the pupil identify items in the calendar?	8
	(ii) Construct a calendar.	1. By using the demonstration technique the teacher to guide pupils to use items in the calendar to construct a calendar. 2. By using the group work technique, the teacher to lead pupils to construct a calendar.	1. Calendar. 2. Chart showing calendar. 3. Tactile chart showing calendar. 4. Manila paper. 5. Maker pen. 6. Ruler. 7. Braille machine.	Can the pupil construct a calendar?	

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
13. ALGEBRA a) Construction of Algebraic Expression and Equations.	The pupil should be able to: (i) Perform algebraic expressions from given statements.	1. By using the demonstration technique, the teacher to lead pupils to perform algebraic expressions from a given statement. 2. By using the practice technique, the teacher to guide pupils to perform algebraic expressions.	1. Chart which shows algebraic expression from given statements. 2. Tactile chart with algebraic expressions from given statements.	Can the pupil perform algebraic expressions from given statements?	10
	(ii) Perform algebraic equations from given statements.	1. By using the demonstration technique, the teacher to guide pupils to perform algebraic equations. 2. By using the group discussion technique, the teacher to guide pupils to perform algebraic equations.	1. Chart showing algebraic equations from given statements. 2. Tactile chart with algebraic equations from given statements. 3. Textbook. 4. Textbook in Braille notation.	Can the pupil perform algebraic equations from given statements?	

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
b) Solving Algebraic Equations.	The pupil should be able to solve algebraic equations.	1. By using the demonstration technique, the teacher to lead pupils to solve algebraic equations. 2. By using the group work practice technique, the teacher to guide pupils to solve algebraic equations.	1. Beam balances. 2. Samples of objects such as packets of sand or salt. 3. Standard masses. 4. Textbook. 5. Textbook in Braille notation.	Can the pupil solve algebraic equations?	8
14. RATIO a) Direct and Inverse Proportions.	The pupil should be able to explain the meaning of direct and inverse proportion.	By using the short lecture technique, the teacher to lead pupils to explain the meaning of direct and inverse proportions.	1. Chart showing direct and inverse proportions. 2. Tactile chart showing direct and inverse proportions. 4. Textbook. 5. Textbook in Braille notation.	Can the pupil explain the meaning of direct and inverse proportions?	8

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
b) Problems Involving Proportions. (inverse and direct)	The pupil should be able to solve problems involving proportions.	1. By using demonstration technique the teacher to lead pupils to solve problems involving proportions. 2. By using group work practice technique the teacher to lead pupils to solve proportional problems.	1. Chart which shows the direct and inverse proportions. 2. Tactile chart showing direct and inverse proportions.	Can the pupil solve problems involving proportions?	8
15. AVERAGES a) Average.	The pupil should be able to explain the meaning of average.	By using the brain – storming technique, the teacher to guide pupils to explain the meaning of average.		Can the pupil explain the meaning of average?	4
b) Problems with Averages.	The pupil should be able to solve problems with averages.	1. By using the demonstration technique, the teacher to guide pupils to solve problems with average. 2. By using the individual work or practice technique, the teacher to guide pupils to solve problems with average.	1. Chart which shows the problems with averages. 2. Tactile chart showing problems with averages. 3. Textbook. 4. Textbook in Braille notation.	Can the pupil solve problems with averages?	8

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
16. GRAPHS AND CHARTS a) Pie charts.	The pupil should be able to: (i) Explain the meaning of a pie chart.	1. By using the short lecture technique, the teacher to lead pupils to explain the meaning of a pie chart. 2. By using the demonstration technique, pupils to construct pie-charts.	1. Pie chart shaped object. 2. Ruler 3. Sample of circular shaped body.	Can the pupil explain the meaning of a pie chart?	8
	(ii) Solve problems on pie charts.	1. By using the demonstration technique, the teacher to guide pupils to solve problems on pie chart. 2. By using the group work practice technique, the teacher to guide pupils to solve problems on pie chart.	1. Pie chart shaped object. 2. Ruler. 3. Sample of circular shaped body. 4. Braille machine.	Can the pupil solve problems on pie charts?	
b) Line Graphs.	The pupil should be able to: (i) Draw line graphs.	1. By using the graphic organizer technique, the teacher to guide pupils to draw line graphs. 2. By using the group work practice technique, the teacher to guide pupils to draw line graphs.	1. Graph papers. 2. Ruler. 3. Braille machine. 4. Textbook. 5. Textbook in Braille notation.	Can the pupil draw line graphs?	8

TOPICS/ SUB-TOPICS	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
	(ii) Interpret line graphs.	By using the group discussion technique, the teacher to guide pupils to interpret line graphs.	1. Graph papers. 2. Ruler. 3. Pencils. 4. Braille machine.	Can the pupil interpret line graphs?	
c) Picture Graphs	The pupil should be able to: (i) Draw picture graphs.	1. By using the graph organizer technique, the teacher to guide pupils to draw picture graphs. 2. By using the group work practice technique, the teacher to lead pupils to draw the picture graphs.	1. Graph paper. 2. Sample of picture graphs. 3. Ruler. 4. Pencils. 5. Braille machine.	Can the pupil draw picture graphs?	8
	(ii) Interpret picture graphs.	By using the observation technique, the teacher to guide pupils to interpret the picture graphs.	1. Graph paper. 2. Sample of picture graphs. 3. Ruler. 4. Braille machine. 5. Textbook. 6. Textbook in Braille notation.	Can the pupil interpret picture graphs?	