

THE REVOLUTIONARY GOVERNMENT OF ZANZIBAR

MINISTRY OF EDUCATION AND VOCATIONAL TRAINING

MATHEMATICS

SYLLABUS FOR PRIMARY SCHOOLS

STANDARD V – VI

2009

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TABLE OF CONTENTS

INTRODUCTIONiv
Reasons for the Development of the New Primary Education Curriculumiv
Importance of Mathematicsv
Goals of Education in Zanzibarv
General Objectives of Primary Educationvi
General Competences in Mathematics vii
General Objectives of Mathematics
Selection of Topics viii
Structure of the Syllabusx
STANDARD FIVE1
COMPETENCES1
OBJECTIVES
STANDARD SIX
COMPETENCES
OBJECTIVES

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.	√	\checkmark
3.	Factors.		\checkmark
4.	Multiples.		\checkmark
5.	Fractions.		\checkmark
6.	Decimals.		-
7.	Bases.	ν	-
8.	Angles.	√ 	-
9.	Parallel and Intersecting Lines.	-	\checkmark
10.	Triangles.	√ 	\checkmark
11.	Length.	√ 	-
12.	Circles.		-
13.	Area.	N	ν
14.	Volume.		\checkmark
15.	Conversion of Units.	ν	\checkmark
16.	Calendar.	ν	\checkmark
17.	Simple Interest.	-	\checkmark
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 MINISTRY OF EDUCATION AND VOCATIONAL TRAINING 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/	SPECIFIC	TEACHING/LEARNING	MATERIALS/AIDS	ASSESSMENT	PERIODS
SUB-TOPICS	OBJECTIVES	TECHNIQUES			
1. WRITING	The pupils should be	By using the short lecture	1. Textbook.	Can the pupils	5
NUMBERS	able to:	technique, the teacher to guide	2. Textbook in Braille	explain the	
a) Concept of place	(i) Explain the concept of	pupils the explain the concept of	notation.	concept of place	
value.	place value.	place value.		value?	
	(ii) Identify the numbers	By using the practice technique,	1. Textbook.	Can the pupils	-
	in their place value.	the teacher to guide pupils to	2. Textbook in Braille	identify the	
		identify number in their place	notation.	numbers in their	
		value.		place value?	
b) Writing Numbers in	The pupil should be able	By using the short lecture	1. Chart showing word	Can the pupil	5
Words.	to:	technique, the teacher to guide the	numbers.	write numbers in	
	(i) Write numbers in	pupils to convert the number in	2. Tactile chart showing	numerals?	
	numerals.	words into numerals.	word numbers.		
	(ii) Write numbers in	1. By using the demonstration	1. Chart showing word	Can the pupil	-
	words correctly.	techniques the teacher to guide	numbers.	write numbers in	
		the pupils to write numbers in	2. Tactile chart showing	words correctly?	
		words.	word numbers.		
		2. By using the practice technique	3. Textbook.		
		the teacher to guide the pupils to	4. Textbook in Braille		
		write number in words.	notation.		

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

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

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

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

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

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

NB: "BODMAS = Bracket Of Division, Multiplication, Addition, Subtraction"

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

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

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

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

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

TOPICS/	SPECIFIC	TEACHING/LEARNING	MATERIALS/AIDS	ASSESSMENT	PERIODS
SUB-TOPICS	OBJECTIVES	TECHNIQUES			
b) Construction of	The pupil should be	1. By using the demonstration technique the	1. Ruler.	Can the pupil	5
Triangles.	able to construct different types of triangles by using mathematical tools.	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	 2. Protractor. 3. Drawing compass. 4. Set square. 5. Textbook. 6. Textbook in Braille notation 	construct different types of triangles using mathematical tools?	
		mathematical tools.			
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.	 Thread. Paper. Pin. Pencil. Scissors/blade. 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.	 Textbook. 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.	 By using the demonstration technique, the teacher to guide the pupils to solve problems involving perimeters. By using individual practice technique, the teacher to guide pupils to solve problems involving perimeters. 	 Textbook. Textbook in Braille notation. 	Can the pupil solve problems involving perimeter?	5

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

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

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

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

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

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

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

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

TOPICS/	SPECIFIC	TEACHING/LEARNING	MATERIALS/AIDS	ASSESSMENT	PERIODS
SUB-TOPICS	OBJECTIVES	TECHNIQUES			
b) Tables and	The pupil should be	By using the graphic organizer	1. Ruler.	Can the pupil construct	6
Histograms.	able to:	technique, the teacher to guide the	2. Protector.	tables and histograms?	
	(i) Construct tables	pupils to construct tables and	3. Drawing compass.		
	and histograms.	histograms.	4. Set square.		
			5. Braille machine.		
	(ii) Solve problems	By using the group work technique,	1. Charts showing histograms	Can the pupil solve	
	involving tables	the teacher to guide the pupils to solve	and tables.	problems involving	
	and histograms.	problems involving tables and	2. Tactile chats showing tables	tables and histograms?	
		histograms.	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/	SPECIFIC OBJECTIVES	TEACHING/LEARNING TECHNIQUES	MATERIALS/AIDS	ASSESSMENT	PERIODS
SUB-TOPICS					
1. TYPES OF	The pupil should be able to	1. By using the demonstration technique,	1. Rulers.	Can the pupil	6
NUMBERS	perform arithmetic operations	the teacher to guide the pupils to	2. Graph papers.	perform arithmetic	
Arithmetic	involving negative and	perform arithmetic operations involving	3. Chart showing positive	operations	
Operations	positive numbers.	negative and positive numbers.	and negative numbers.	involving negative	
involving			4. Tactile chart showing	and positive	
Negative and		2. By using the quiz technique, the teacher	positive and negative	numbers?	
Positive		to guide the pupils to perform	numbers.		
Numbers		arithmetic operations involving	5. Textbook.		
integers.		negative and positive numbers.	6. Textbook in Braille		
			notation.		
2. FACTORS	The pupil should be able to:	By using the short lecture technique, the	1. Charts which shows	Can the pupil	8
a) Exponent of	(i) Explain the meaning of	teacher to guide the pupils to explain the	the exponent of	explain the	
Two and Three.	exponent.	meaning of exponent.	numbers.	meaning of	
			2. Tactile chats showing	exponent?	
			exponent of numbers.		
			4. Textbook.		
			5. Textbook in Braille		
			notation.		

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

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

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

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

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

SUB-TOPICS OBJECTIVES TECHNIQUES	
b) Angles The pupil should be able By using the short lecture technique, the 1. Textbook. Can the pupil identify	12
between to: teacher to guide the pupils to identify 2. Textbooks in Braille the names angles	
Parallel and(i) Identify the names ofthe names of the angles formed bynotation.formed by parallel	
Transversalthe angles formed byparallel and transversal lines.lines?	
lines. parallel and	
transversal lines.	
(ii) State the properties By using the group discussion 1. Ruler. Can the pupil state the	-
of angles formed by technique, the teacher to guide the 2. Protractor. properties of angles	
parallel and pupils to state the properties of angles 3. Compass. formed by parallel and	
transversal lines. formed by parallel and transversal line. 4. Braille machine. transversal lines?	
5. Textbook.	
6. Textbook in Braille notation.	
(iii) Solve problems onBy using the group work practice1. Ruler.Can the pupil solve	
angles formed by techniques, the teacher to guide the 2. Protractor. problems on angles	
parallel and pupils to solve problems on angles 3. Compass. formed by parallel	
transversal lines. formed by parallel and transversal 4. Braille machine. and transversal lines?	
lines.	

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

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

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

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

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

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

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

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

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

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

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

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