REPUBLIC OF KENYA

MINISTRY OF EDUCATION

JUNIOR SCHOOL CURRICULUM DESIGN

MATHEMATICS

GRADE 7

FOR LEARNERS WITH VISUAL IMPAIRMENT

KENYA INSTITUTE OF CURRICULUM DEVELOPMENT

A Skilled and Ethical Society

First Published in 2022

Revised 2024

ISBN: 978-9914-43-932-8

Published and printed by Kenya Institute of Curriculum Development

FOREWORD

The Government of Kenya is committed to ensuring that policy objectives for Education, Training and Research meet the aspirations of the Constitution of Kenya 2010, the Kenya Vision 2030, National Curriculum Policy 2019, the United Nations Sustainable Development Goals (SDGs) and the Regional and Global conventions to which Kenya is a signatory. Towards achieving the mission of Basic Education, the Ministry of Education (MoE) has successfully and progressively rolled out the implementation of the Competency Based Curriculum (CBC) at Pre-Primary, Primary and Junior School levels.

The implementation of Competency Based Curriculum involves monitoring and evaluation to determine its success. After the five-year implementation cycle, a summative evaluation of the primary education cycle was undertaken to establish the achievement of learning outcomes as envisaged in the Basic Education Curriculum Framework. The Government of Kenya constituted a Presidential working Party on Education Reforms (PWPER) in 2022 to address salient issues affecting the education sector. PWPER made far reaching recommendations for basic education that necessitated curriculum review. The recommendations of the PWPER, monitoring reports, summative evaluation, feedback from curriculum implementers and other stakeholders led to rationalisation and review of the basic education curriculum.

The reviewed Grade seven curriculum designs for learners with Visual impairment build on competencies attained by learners at Primary school level. Emphasis at this grade is the development of skills for exploration and making informed decision on pathways based on careers.

The curriculum designs present National Goals of Education, essence statements, general and specific expected learning outcomes for the subjects as well as strands and sub strands. The designs also outline suggested learning experiences, key inquiry questions, core competencies, Pertinent and Contemporary Issues (PCIs), values, and assessment rubric.

It is my hope that all Government agencies and other stakeholders in Education will use the designs to plan for effective and efficient implementation of the CBC.

HON. EZEKIEL OMBAKI MACHOGU, CBS
CABINET SECRETARY,
MINISTRY OF EDUCATION

PREFACE

The Ministry of Education (MoE) nationally implemented Competency Based Curriculum (CBC) in 2019. Grade seven is the first grade of Junior school while Grade 9 is the final grade of the level in the reformed education structure.

The reviewed Grade seven curriculum furthers implementation of the CBC from Primary Education level. The curriculum provides opportunities for learners to focus in a field of their choice to form a foundation for further education and training and/or gain employable skills. This is very critical in the realisation of the Vision and Mission of the on-going curriculum reforms as enshrined in the Sessional Paper No. I of 2019 whose title is: Towards Realizing Quality, Relevant and Inclusive Education and Training for Sustainable Development in Kenya. The Sessional Paper explains the shift from a content-focused curriculum to a focus on **nurturing every learner's potential.**

Therefore, the Grade seven curriculum designs for learners with Visual impairment are intended to enhance the learners' development in the CBC core competencies, namely: Communication and Collaboration, Critical Thinking and Problem Solving, Creativity and Imagination, Citizenship, Digital Literacy, learning to Learn and Self-efficacy.

The curriculum designs provide suggestions for interactive and differentiated learning experiences linked to the various sub strands and the other aspects of the CBC. They also offer several suggested learning resources and a variety of assessment techniques. It is expected that the designs will guide teachers to effectively facilitate learners to attain the expected learning outcomes for Grade seven and prepare them for smooth transition to Grade eight. Furthermore, it is my hope that teachers will use the adapted designs to make learning interesting, exciting and enjoyable.

DR. BELIO KIPSANG', CBS
PRINCIPAL SECRETARY
STATE DEPARTMENT FOR BASIC EDUCATION
MINISTRY OF EDUCATION

ACKNOWLEDGEMENT

The Kenya Institute of Curriculum Development (KICD) Act Number 4 of 2013 (Revised 2019) mandates the Institute to develop and review curricula and curriculum support materials for basic and tertiary education and training. The curriculum development process for any level of education involves thorough research, international benchmarking and robust stakeholder engagement. Through a systematic and consultative process, the KICD conceptualised the Competency Based Curriculum (CBC) as captured in the Basic Education Curriculum Framework (BECF)2017, that responds to the demands of the 21st Century and the aspirations captured in the Constitution of Kenya 2010, the Kenya Vision 2030, East African Community Protocol, International Bureau of Education Guidelines and the United Nations Sustainable Development Goals (SDGs).

KICD receives its funding from the Government of Kenya to facilitate successful achievement of the stipulated mandate and implementation of the Government and Sector (Ministry of Education (MoE) plans. The Institute also receives support from development partners targeting specific programmes. The revised Grade seven curriculum designs for learners with Visual impairment were developed and adapted with the support of the World Bank through the Kenya Primary Education Equity in Learning Programme (KPEELP); a project coordinated by MoE. Therefore, the Institute is very grateful for the support of the Government of Kenya, through the MoE and the development partners for policy, resource and logistical support. Specifically, special thanks to the Cabinet Secretary-MoE and the Principal Secretary – State Department of Basic Education,

I also wish to acknowledge the KICD curriculum developers and other staff, all teachers, educators who took part as panellists; the Semi-Autonomous Government Agencies (SAGAs) and representatives of various stakeholders for their roles in the development and adaptation of the Grade seven curriculum designs for learners with Visual impairment. In relation to this, I acknowledge the support of the Chief Executive Officers of the Teachers Service Commission (TSC) and the Kenya National Examinations Council (KNEC) for their support in the process of developing and adapting these designs. Finally, I am very grateful to the KICD Council Chairperson and other members of the Council for very consistent guidance in the process.

I assure all teachers, parents and other stakeholders that this curriculum design will effectively guide the implementation of the CBC at Grade seven and preparation of learners with Visual impairment for transition to Grade eight.

PROF. CHARLES O. ONG'ONDO, PhD, MBS

DIRECTOR/CHIEF EXECUTIVE OFFICER
KENYA INSTITUTE OF CURRICULUM DEVELOPMENT

TABLE OF CONTENTS

NATIONAL GOALS OF EDUCATION

Education in Kenya should:

i) **Foster nationalism, patriotism and promote national unity.**

Kenya's people belong to different communities, races and religions, but these differences need not divide them. They must be able to live and interact as Kenyans. It is a paramount duty of education to help young people acquire this sense of nationhood by removing conflicts and promoting positive attitudes of mutual respect which enable them to live together in harmony and foster patriotism in order to make a positive contribution to the life of the nation.

ii) **Promote the social, economic, technological and industrial needs for national development.**

Education should prepare the youth of the country to play an effective and productive role in the life of the nation.

a) **Social Needs**

Education in Kenya must prepare children for changes in attitudes and relationships which are necessary for the smooth progress of a rapidly developing modern economy. There is bound to be a silent social revolution in the wake of rapid modernisation. Education should assist our youth to adapt to this change.

b) **Economic Needs**

Education in Kenya should produce citizens with the skills, knowledge, expertise and personal qualities that are required to support a growing economy. Kenya is building a modern and independent economy which is in need of an adequate and relevant domestic workforce.

c) **Technological and Industrial Needs**

Education in Kenya should provide learners with the necessary skills and attitudes for industrial development. Kenya recognises the rapid industrial and technological changes taking place, especially in the developed world. We can only be part of this development if our education system is deliberately focused on the knowledge, skills and attitudes that will prepare our young people for these changing global trends.

iii) **Promote individual development and self-fulfilment.**

Education should provide opportunities for the fullest development of individual talents and personality. It should help children to develop their potential interests and abilities. A vital aspect of individual development is the building of character.

iv) **Promote sound moral and religious values.**
Education should provide for the development of knowledge, skills and attitudes that will enhance the acquisition of sound moral values and help children to grow up into self-disciplined, self-reliant and integrated citizens.

v) **Promote social equality and responsibility.**
Education should promote social equality and foster a sense of social responsibility within an education system which provides equal educational opportunities for all. It should give all children varied and challenging opportunities for collective activities and corporate social service irrespective of gender, ability or geographical environment.

vi) **Promote respect for and development of Kenya's rich and varied cultures.**
Education should instil in the youth of Kenya an understanding of past and present cultures and their valid place in contemporary society. Children should be able to blend the best of traditional values with the changing requirements that must follow rapid development in order to build a stable and modern society.

vii) **Promote international consciousness and foster positive attitudes towards other nations.**
Kenya is part of the international community. It is part of the complicated and interdependent network of peoples and nations. Education should therefore lead the youth of the country to accept membership of this international community with all the obligations and responsibilities, rights and benefits that this membership entails.

viii. Promote positive attitudes towards good health and environmental protection.
Education should inculcate in young people the value of good health in order for them to avoid indulging in activities that will lead to physical or mental ill health. It should foster positive attitudes towards environmental development and conservation. It should lead the youth of Kenya to appreciate the need for a healthy environment.

LESSON ALLOCATION AT JUNIOR SCHOOL

S/No	Learning Area	Number of Lessons Per Week
1.	English for learners with visual impairment	5
2.	Kiswahili for learners with visual impairment	4
3.	Mathematics for learners with visual impairment	5
4.	Religious Education	4
5.	Social Studies for learners with visual impairment	4
6.	Integrated Science for learners with visual impairment	5
7.	Pre-Technical Studies for learners with visual impairment	4
8.	Agriculture and Nutrition for learners with visual impairment	4
9.	Creative Arts and Sports for learners with visual impairment	5
	Pastoral /Religious Instructional Program	1
Total		**41**

NOTE: Braille skills for learners with blindness be implemented as Non-formal (co- curricular) programmes

LEARNING OUTCOMES FOR JUNIOR SCHOOL

By the end of Junior School, the learner with visual impairment should be able to:

1. Apply literacy, numeracy and logical thinking skills for appropriate self-expression.
2. Communicate effectively, verbally and non-verbally, in diverse contexts.
3. Demonstrate social skills, spiritual and moral values for peaceful co-existence.
4. Explore, manipulate, manage and conserve the environment effectively for learning and sustainable development.
5. Practise relevant hygiene, sanitation and nutrition skills to promote health.
6. Demonstrate ethical behaviour and exhibit good citizenship as a civic responsibility.
7. Appreciate the country's rich and diverse cultural heritage for harmonious coexistence.
8. Manage pertinent and contemporary issues in society effectively.
9. Apply digital literacy skills for communication and learning.

ESSENCE STATEMENT

Mathematics is essential to our daily interactions whereby we count, add, subtract, multiply or divide quantities and substances. It involves understanding numbers and the numerical operations used to develop strategies for mental mathematical problem-solving skills, estimation and computational fluency. It covers areas like space, shape and structures, therefore learners with visual impairment will need an adapted design to take part in activities involving abstract concepts. It is impossible to think of a world without Mathematics which can be applied in the economic activities, scientific, social, religious and political worlds. It is therefore imperative that learners with visual impairment are taught Mathematics from early years.

In Junior School, Mathematics builds on the competencies acquired by the learner with visual impairment from primary school. It enhances the learner's competencies in mathematical skills as a foundation for Science, Technology, Engineering and Mathematics (STEM) and other pathways at Senior School. Mathematics also prepares the learner with visual impairment to have sufficient skills and competencies for application in solving problems in real life situations. This is in line with vision 2030 and sessional paper number 1 of 2019 which emphasises on STEM areas.

SUBJECT GENERAL LEARNING OUTCOMES

By the end of the Junior School, the learner with visual impairment should be able to:

1. Demonstrate mastery of number concepts by working out problems in day to day life.
2. Represent and apply algebraic expressions in different ways.
3. Apply measurement skills to find solutions to problems in a variety of contexts.
4. Use money and carry out financial transactions in real life situations.
5. Generate geometrical shapes and describe spatial relationships in different contexts.
6. Collect and organise data to inform and solve problems in real life situations.
7. Develop logical thinking, reasoning, communication and application skills through a mathematical approach to problem solving.
8. Apply mathematical ideas and concepts to other learning areas or subjects and in real life contexts.
9. Develop confidence and interest in mathematics for further training and enjoyment.

SUMMARY OF STRANDS AND SUB STRANDS

STRANDS	SUB STRANDS	Suggested Number of Lessons
1.0 NUMBERS	1.1 Whole Numbers	20
	1.2 Factors	7
	1.3 Fractions	9
	1.4 Decimals	6
	1.5 Squares and Square Roots	5
2.0 ALGEBRA	2.1 Algebraic Expressions	5
	2.2 Linear Equations	6
	2.3 Linear Inequalities	8
3.0 MEASUREMENTS	3.1 Pythagorean Relationship	4

	3.2 Length	6
	3.3 Area	8
	3.4 Volume and Capacity	8
	3.5 Time, Distance and Speed	8
	3.6 Temperature	6
	3.7 Money	14
4.0 GEOMETRY	4.1 Angles	8
	4.2 Geometrical Constructions	12
5.0 DATA HANDLING AND PROBABILITY	5.1 Data Handling	10
Total Number of Lessons		**150**
Note: The suggested number of lessons per sub strand may be less or more depending on the context.		

STRAND 1.0: NUMBERS

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 NUMBERS	**1.1 Whole Numbers** **(20 lessons)**	By the end of the sub-strand the learner should be able to: a) identify place value and total value of digits up to hundreds of millions in real life, b) use place value and total value of digits up to hundreds of millions in real life, c) read and write numbers in symbols up to hundreds of millions in real life situations, d) read and write numbers in words up to millions for fluency, e) round off numbers up to the nearest	● Learners with low vision are guided to identify and write place value and total value of digits using place value charts in appropriate font and colour contrast. Learners with blindness are guided to manipulate abacus and use it to undertake the activity. ● Learners with low vision are guided to read and write numbers in symbols on number cards or charts in appropriate font and colour contrast while learners with blindness are guided to read numbers on braille cards. ● Learners with low vision are guided to read and write numbers in words on number cards or charts in appropriate font and colour contrast and practise writing dummy cheques for different sums of money. Learners with blindness are guided to read and write numbers in words on braille work cards and practise writing dummy cheques in braille for different sums of money. ● In pairs or in groups, learners with low vision be guided to prepare and use place value charts in appropriate font and colour contrast to round off	1. Why do we write numbers in words and/or symbols? 2. Why do we round off numbers in real life situations?

		hundreds of millions in real life situations, f) classify natural numbers as even, odd and prime in different situations, g) apply operations of whole numbers in real life situations, h) identify number sequence in different situations, i) create number sequence for playing number games, j) appreciate use of whole numbers in real life situations.	numbers while learners with blindness interpret and use tactile place value charts to round off numbers. ● In groups learners play a number game, make number cards, sort and classify numbers according to those that are even, odd or prime. ● Learners work out or perform 2, 3 or more combined operations in the correct order using digital devices with assistive technology such adapted keyboard. ● Learners are guided to identify the number patterns to work out number sequences. ● Learners use digital devices with assistive technology such as screen readers and adapted keyboard or other materials to play games of creating number puzzles that involve number sequences.	

Core Competencies to be developed:

- Communication and collaboration: A learner develops team work as they work together with others to prepare and use place value charts to round off numbers.
- Critical thinking and problem solving: A learner develops interpretation and inference as the learner works together with others to identify number patterns.
- Creativity and Imagination: A learner develops making observations as the learner plays games of creating number puzzles that involve number sequences.

Values:

- Respect: A learner exercises etiquette as they listen to and appreciate diverse opinions while working in pairs or groups to play number games.
- Unity: A learner enhances non-discrimination as they collaborate with others while working towards achieving set goals of making number puzzles.
- Peace: A learner enhances responsibility as they collaboratively work in groups and share different roles in playing games.

Pertinent and Contemporary Issues (PCIs):

- Financial literacy: A learner practises writing dummy cheques for different sums of money.

Link to other subjects:

- Pre-Technical Studies: A learner writes numbers in words and in symbols as they practise writing dummy cheques at home and use digital devices with assistive technology to play number games.

Link to other subjects

- Languages: The aspect of reading and writing numbers in words enhances language skills especially English.

Suggested Learning Resources:

- Abacus, Dummy cheques, Print and braille course books, Place value chart, digital devices with assistive technology such as magnifiers and adapted keyboard, Cards in Print and Braille, Number cards or charts with appropriate font and colour contrast.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 NUMBERS	**1.2 Factors** **(7 lessons)**	By the end of the sub-strand, the learner should be able to: a) describe the concept of divisibility test of whole numbers, b) test divisibility of numbers by 2, 3, 4, 5, 6, 8, 9,10 and 11 in different situations, c) express composite numbers as a product of prime factors in different situations, d) work out the Greatest Common Divisor (GCD) and the Least Common Multiples (LCM) of numbers by factor method in different situations, e) apply the Greatest Common Divisor (GCD) and the Least Common Multiples (LCM) in real life situations,	● In groups, learners discuss the concept of divisibility in a variety of contexts and share with peers. ● Learners are guided to determine divisibility of numbers using regrouping and divisibility rule on worksheets in print and in braille. ● Learners with low vision are guided to write factors of composite numbers by factorization, factor tree, factor rainbow charts in appropriate font and colour contrast, or cards made from locally available materials. Learners with blindness are guided to write the factors of composite numbers by factorization.	1. Why do we use factors in day-to-day activities? 2. How do we use factors in day-to-day activities? 3. How do we apply the GCD and the LCM in day-to-day activities?

		f) reflect on the use of factors in real life situations.	• Learners with low vision are guided to use factors to determine the LCM and the GCD using number cards or charts in appropriate colour contrast and font. Learners with blindness are guided to use factors to determine the LCM and GCD and proper arrangement of each of the values in rows and columns. • Learners are guided to use digital with assistive technology such as screen readers, magnifiers and adapted keyboard to access factors of numbers including songs/poems or games on divisibility tests. • Learners are guided to work out application questions and solve problems relating to the GCD and the LCM in real life situations. • Learners determine the GCD and LCM of numbers using digital devices with assistive technology such as magnifies and screen readers to perform exercises on factors such as	

			matching activities or adapted games.	

Core Competencies to be developed:

- Digital literacy: A learner develops the use of technology while using digital devices with assistive technology to access factors of numbers including songs and poems on divisibility tests.
- Critical thinking and problem solving: A learner develops researching skills as they apply the GCD and the LCM in solving real life problems.

Values:

- Unity: A learner enhances inclusion when appreciating the effort of others as they sing together or solve puzzles on factors.
- Respect: A learner enhances acceptance while appreciating diverse opinions of others as they work in groups writing factors of composite numbers using factor trees.

Pertinent and Contemporary Issues (PCIs):

- Education for Sustainable Development (ESD): A learner uses locally available materials for making number cards and charts.

Link to other subjects:

- Creative arts and sport: A learner enhances the art of creativity acquired in creative arts and sports to create songs and poems on divisibility tests.
- Agriculture and Nutrition: A learner applies LCM or GCD as they plan for smallest or largest containers used in Agriculture for measuring different substances.

Suggested Learning Resources:

Print and Braille Course Book, Braille Worksheet, Factor Rainbow charts, Braille Cards and digital device with assistive technology such as screen magnifiers, adapted keyboards.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 NUMBERS	**1.3 Fractions** (9 lessons)	By the end of the sub-strand, the learner should be able to: a) compare fractions in different situations, b) add fractions in different situations, c) subtract fractions in different situations, d) multiply fractions by a whole number, fraction and a mixed number in real life situations, e) identify the reciprocals of fractions in different situations, f) divide fractions by a whole number, fraction and a mixed fraction in real life situations, g) divide a whole number by fractions in different situations, h) identify number sequence involving fractions in different situations,	● Learners discuss and arrange fractions in increasing and decreasing order using different strategies. ● Learners with low vision are guided to use fraction cards in appropriate font and colour contrast while learners with blindness use tactile fraction cards to arrange fractions in ascending or descending order. ● Learners with low vision are guided to add and subtract fractions in cut-outs, cards, concrete objects and charts in appropriate font and colour contrast. Learners with blindness are guided to undertake the activity by first manipulating the cut-outs, cards and concrete objects. ● Learners with low vision are guided to multiply and divide fractions using cut outs, cards and concrete objects while learners with blindness are guided to multiply and divide fractions using tactile cut outs, tactile cards, abacus and concrete objects.	1. Why do we compare fractions in different situations? 2. How do we use fractions in daily activities?

		i) create number sequence involving fractions for playing number games, j) recognise use of fractions in real life situations.	● Learners with low vision are guided to use flip cards in appropriate colour contrast and font while learners with blindness use flip cards with braille tests to discuss reciprocals. ● Learners are guided to use digital devices with assistive technology such as adapted key board or other materials to play adapted games of creating number puzzles that involve fractions number sequences ● Learners create a fraction sequence game that can be used for play and learning. ● Learners use digital devices with assistive technology to work out operations of fractions.	

Core Competencies to be developed:

- Creativity and imagination: A Learner develops originality as they create puzzles involving fractions.
- Critical thinking and problem solving: A learner develops evaluation and decision making skills as they evaluate and apply fractions using cut-outs, cards, charts and models from local resources.

Values:

- Social justice: A learner enriches fairness as they share resources amicably amongst themselves.
- Responsibility: A learner enhances self -drive as they perform multiplication and division of fractions when sharing or allocating resources.

Pertinent and Contemporary Issues (PCIs):

- Citizenship: A learner promotes equity as they carry out division of fractions, which implies sharing.
- Social cohesion: A learner enhances equitable sharing of items at home and outside school using fractions.

Link to other subjects:

- Creative arts and sports: A learner applies the knowledge on fractions to identify and familiarise themselves with the types of musical notes like semi-quavers (1/16), quavers.
- Agriculture and Nutrition: A learner uses the knowledge learnt in fractions to gives portions of animal feed on agricultural fields.

Suggested Learning Resources:

- Digital devices with assistive technology such as magnifiers, screen readers and adapted keyboards, Abacus, concrete objects, tactile fraction cards, Cut-outs, Charts, Cards. Print and Braille Course books**,**

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 NUMBERS	**1.4 Decimals** **(6 lessons)**	By the end of the sub-strand, the learner should be able to: a) identify the place value and the total value of digits in decimals in real life, b) multiply decimals by a whole number and by a decimal in real life situations, c) divide decimals by a whole number and by a decimal in real life situations, d) recognise use of decimals in real life situations.	● Learners with low vision are guided to discuss, state and find the place value and total value of decimals using place value apparatus and worksheets in appropriate font and colour contrast. Learners with blindness are guided to undertake the activity using abacus and braille work cards. ● Learners with low vision multiply and divide decimals using cut-outs, cards, charts in appropriate font and colour contrast and models. Learners with blindness are guided to manipulate and use cut-outs, cards and tactile charts to undertake the activity. ● Learners use calculators/ or scientific talking calculators and other digital devices with assistive technology to work out operations of decimals.	1. How are decimals applicable in real life? 2. Why do you use decimals in daily activities?

			● Learners play games involving multiplication and division of decimals.	

Core Competencies to be developed:

- Critical thinking and problem solving: A learner develops open-mindedness and creativity as they identify and use the place value and the total value of decimals using place value apparatus and worksheets.
- Digital literacy: A learner interacts with technology as they use digital gadgets to learn more on decimals.

Values:

- Unity: A learner enhances cooperation as they display team spirit while working in groups to multiply and divide decimals using cut-outs, cards, charts and models.
- Responsibility: A learner enriches determination as they perform multiplication and division of decimals.

Pertinent and Contemporary Issues (PCIs):

- Safety and security: A learner takes precautions as they make paper cut-outs or other materials and models.

Link to other subjects:

- Integrated Science: A learner measures and expresses quantities in decimal forms.
- Agriculture and Nutrition: A learner applies the knowledge on decimals to measures the mass of ingredients used for cooking.

Suggested Learning Resources:

- Abacus, scientific talking calculators, Braille work card, digital device with assistive technology such as screen readers, Print and Braille course book.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 NUMBERS	**1.5 Squares and Square Roots** (5 lessons)	By the end of the sub-strand, the learner should be able to: a) determine the squares of whole numbers, fractions and decimals by multiplication in different situations, b) determine the square roots of whole numbers, fractions and decimals of perfect squares in different situations, c) appreciate use of squares and square roots in real life situations.	• Learners with low vision are guided to work out squares of numbers using: grids and charts in appropriate font and colour contrast, long multiplication method by guiding the learner on the proper alignment of digits and using calculators. Learners with blindness are guided to interpret tactile grids and charts by matching rows and columns and use of scientific talking calculators to work out squares of numbers. • Learners with low vision are guided to work out square roots of numbers using; factors method, division method and by use of calculators. Learners with blindness are guided to properly arrange factors when using the factor method and how to use the scientific talking calculator.	1. How do we apply squares and square roots in daily activities? 2. Why do we use a long multiplication method in working out squares of numbers?

			● Learners use digital devices with assistive technology such as adapted keyboard, screen readers and magnifiers to play games involving squares and square roots.	

Core Competencies to be developed:

- Critical thinking and problem solving: A learner demonstrates objective ideas, opinions and views while reflecting on the use of grid squares and charts to find squares and square roots of number.
- Digital literacy: A learner interacts with technology while using digital devices to work out squares and square roots of numbers.

Values:

- Respect: A learner enhances etiquette as they appreciate each other's contribution in group work when using grids and charts.
- Peace: A learner enhances love as they work harmoniously in pairs to work out the square root of numbers.

Pertinent and Contemporary Issues (PCIs):

- Environmental education: A learner considers shapes of different objects in the school compound especially the ones that are squares.

Link to other subjects:

- Agriculture and nutrition: A learner determines the number of seedlings that would fit in a square portion of land.

Suggested Learning Resources:

- Mathematical Grids, Tactile Grids, Tactile Charts, Scientific Talking Calculators, Charts, Scientific Calculators, digital devices with assistive technology such as magnifiers, refreshable braille displays., Print and Braille Course Books.

Suggested Assessment Rubric

Indicator	**Exceeds Expectations**	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Ability to: • use place value and total value of digits up to hundreds of millions in real life, • apply operations of whole numbers in real life situations, • work out the Greatest Common Divisor (GCD) and the Least Common Multiples (LCM) of numbers by factor method in different situations, • perform operations on fractions in different situations, • identify the place value and the total value of digits in decimals in real life, • determine the squares of whole numbers, fractions and decimals by multiplication in different situations, • determine the square roots of whole numbers, fractions and decimals of perfect squares in different situations.	The learner demonstrates the seven skills.	The learner demonstrates five to six skills.	The learner demonstrates three to four skills.	The learner demonstrates at most two skills.

STRAND 2.0: ALGEBRA				
Strand	**Sub-Strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Suggested Key Inquiry Question(s)**
2.0 ALGEBRA	**2.1 Algebraic Expressions (5 lessons)**	By the end of the sub-strand the learner should be able to: a) identify variables and constants in forming algebraic expressions, b) form algebraic expressions from real life situations, c) form algebraic expressions from simple algebraic statements in real life situations, d) simplify algebraic expressions in real life situations, e) appreciate the use of algebraic expressions in real life.	● Learners with low vision are guided to discuss and classify objects in their immediate environment according to given attributes such as similarities or differences. Learners with blindness are given orientation of the immediate environment as they manipulate the objects to identify their similarities or differences. ● Learners discuss the variables, constants and how to form algebraic expressions from the classified objects. Learners with blindness are guided on how to combine numbers with algebra when writing algebraic expressions in braille. ● Learners are guided to read and interpret algebraic statements to form algebraic expressions. ● In groups, learners discuss how to simplify algebraic expressions from the classified objects.	1. How do we use algebraic expressions in daily activities? 2. How do we form expressions from simple algebraic statements?

			● Learners use digital devices with assistive technology such as screen readers, magnifiers and adapted keyboard to work out exercises and activities in algebra or drag and drop activities to group similar objects.	

Core Competencies to be developed:

- Communication and collaboration: A learner develops speaking, listening and teamwork as they discuss in groups on the formation of algebraic expressions.
- Critical thinking and problem solving: A learner develops interpretation and inference skills as they factorise algebraic expressions.

Values:

- Unity: A learner enhances cooperation as they classify or group similar objects during their group discussion.
- Patriotism: A learner enhances dedication as they discuss and classify objects in their immediate environment according to given attributes such as similarities or differences.

Pertinent and Contemporary Issues (PCIs):

- Environmental education: A learner enhances awareness of the environment as they classify and group different objects from the environment.

Link to other subjects:

- English: A learner interprets statements to form algebraic expressions.

Suggested Learning Resources:

- Digital devices with assistive technology such as magnifiers, screen readers and adapted keyboard, realia of similar objects, print and braille course books.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 ALGEBRA	2.2 **Linear Equations** (6 lessons)	By the end of the sub-strand, the learner should be able to: a) define linear equations in mathematical contexts, b) form linear equations in one unknown in different situations, c) solve linear equations in one unknown in different situations, d) apply linear equations in one unknown to real life situations, e) reflect on the use of linear equations in real life situations.	● In groups, learners with low vision are guided to brain storm on the meaning of algebraic equations and role play activities involving equations with one unknown. Learners with blindness are given one on one demonstration and steps involved in the role play activities. ● Learners discuss how to form linear equations generated from role-play activities. ● Learners are guided on how to work out linear equations generated from role-play activities. Learners with blindness be given one on one demonstration and the steps involved in the role play activities ● Learners use digital devices with assistive technology such as screen magnifiers and screen	1. How do we use linear equations in real life? 2. Why do we use linear equations in real life?

			readers to form and solve linear equations.	

Core Competencies to be developed:

- Communication and collaboration: A learner develops speaking, listening and team work as they role-play in groups on activities involving equations in one unknown.
- Self-efficacy: A learner develops self-awareness skills as they carry out weighing using beam balance and role play.
- Learning to learn: A learner reflects on their own experiences as they apply linear equations in real life.

Values:

- Social justice: A learner enhances cooperation as they work out linear equations generated from role-play activities.
- Responsibility: A learner enhances self-drive as they role play activities involving equations with one unknown.

Pertinent and Contemporary Issues (PCIs):

- Social cohesion: A learner works in groups to role play in shopping activities.
- Life skills and values-self-esteem: A learner participates in role-play activities like weighing and shopping that will lead to equations in one unknown.

Link to other subjects:

- Pre-technical studies: A learner uses digital devices with assistive technology in forming and solving equations.

Suggested Learning Resources:

- Digital devices with assistive technology such as magnifiers, screen readers and adapted keyboards, Print and Braille Course Books**.**

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 ALGEBRA	**2.3 Linear Inequalities** (8 lessons**)**	By the end of the sub-strand the learner should be able to: a) write braille symbol for less than or greater than *(for learners with blindness),* b) apply inequality symbols to inequality statements in learning situations, c) form simple linear inequalities in one unknown in different situations, d) illustrate simple inequalities on a number line *(for learners with low vision),* e) interpret simple inequalities on a number line *(for learners with blindness),*	● Learners with blindness to identify braille symbols for greater than and less than on braille work cards and be guided to practise writing braille symbols for greater than and less than using braille writing equipment and materials and present in class. ● Learners with low vision are guided to use inequality task cards in appropriate font and colour contrast to complete simple inequality statements. Learners with blindness are guided to use tactile inequality task cards to undertake the activity. ● Learners with low vision are guided to use inequality task cards in appropriate font and colour contrast to form simple inequality statements while learners with blindness are guided to use tactile inequality task cards and how to combine braille inequality symbols and	1. How do we use linear inequalities in real life? 2. Why do we use linear inequalities in real life?

		f) form compound inequality statements in one unknown in different situations, g) illustrate compound inequalities in one unknown on a number line, *(for learners with low vision),* h) interpret compound inequalities in one unknown on a number line, *(for learners with blindness)* i) appreciate use of linear inequalities in real life.	numbers form simple inequality statements. ● Learners with low vision draw and represent simple inequality statements on a number line. ● Learners with blindness are guided to manipulate and interpret simple inequalities on a number line. ● Learners with low vision are guided to use inequality task cards in appropriate font and colour contrast to complete compound inequality statements. Learners with blindness are guided to use tactile inequality task cards to complete compound inequality statements. ● Learners with low vision are guided to draw and represent compound inequality statements on a number line. ● Learners with blindness are guided to manipulate and interpret compound inequality statements on a number line. ● Learners use digital devices with assistive technology such as screen readers, magnifiers adapted keyboard and graphing computer tools to form and solve linear equations.	
Core Competencies to be developed: ● Communication and collaboration: A learner develops speaking and listening skills as they discuss how to form linear inequalities.				

● Creativity and imagination: A learner develops networking skills as they draw and represent inequality statements on a number line.
Values: ● Unity: A learner enhances inclusion as they work in groups to form simple inequality statements. ● Integrity: A learner enhances accountability as they observe the conditions of the given inequalities.
Pertinent and Contemporary Issues (PCIs): • Safety and security-Internet safety and security: A learner is aware of internet safety while using digital devices with assistive technology graphing tools to present solutions to inequalities.
Link to other subjects: ● English: A learner forms linear inequalities from different situations. ● Pre-technical studies: A learner uses digital devices with assistive technology graphing tools to present solutions to inequalities.
Suggested learning resources: ● Digital devices with assistive technology such as magnifiers, screen readers and adapted keyboard, Inequality task cards in appropriate font and colour contrast, Tactile Inequality task cards, Compound inequality statements on a number line and Print and Braille Course book.

Suggested Assessment rubric

Indicators	**Exceeds Expectations**	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Ability to: • form algebraic expressions from simple algebraic statements in real life situations, • solve linear equations in one unknown in different situations, • form simple linear inequalities in one unknown in different situations, • illustrate compound inequalities in one unknown on a number line, *(for learners with low vision)*, or interpret compound inequalities in one unknown on a number line, *(for learners with blindness)*	The learner demonstrates the four skills.	The learner demonstrates three skills.	The learner demonstrates four skills.	The learner demonstrates one or no skill.

STRAND 3.0: MEASUREMENTS				
Strand	**Sub-Strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Suggested Key Inquiry Question(s)**
3.0 MEASUREMENTS	**3.1 Pythagorean Relationship (4 lessons)**	By the end of the sub-strand, the learner should be able to: a) recognise the sides of a right-angled triangle in different situations, b) identify Pythagorean relationship in different situations, c) apply Pythagorean relationship to real life situations, d) promote use of Pythagoras Theorem in real life situations.	• Learners with low vision draw and represent practical cases of a right-angled triangle of an object, leaning on a wall at different positions and recognise the sides as the hypotenuse, the height and the base. For example, a ladder leaning on a wall. Learners with blindness are guided to manipulate tactile right-angled triangles to identify its different sides. Learners are given one on one orientation to experience a ladder leaning on the wall and relate it to right angled triangle. • Learners with low vision carry out a variety of activities for example, counting squares on different sides of a 3, 4, 5 right angled-triangle. Learners with blindness are guided to manipulate and count squares to establish the Pythagorean relationship and practise using other right angled-triangles.	1. How do we use Pythagorean relationships in real life situations? 2. How do you promote the use of Pythagoras Theorem in real life situations?

			● Learners work out exercises related to Pythagorean relationships. ● Learners with low vision create Pythagorean relationship puzzles in print while learners with blindness create the puzzles using braille equipment and materials. ● Learners use digital devices with assistive technology such as screen readers, magnifiers and adapted keyboard to explore the use of Pythagorean relationships in daily life.	

Core Competencies to be developed:

- Critical thinking and problem solving: A learner develops interpretation and inference skills as they identify Pythagorean relationships in different situations.
- Creativity and imagination: A learner develops observation skills as they create Pythagorean relationship puzzles.
- Learning to learn: A learner develop independence as they apply Pythagorean relationships in real life situations.

Values:

- Unity: A learner enhances cooperation as they carry out various activities together, such as creating Pythagorean relationship puzzles.
- Respect: A learner enhances acceptance as they appreciate each other's opinions when identifying and applying Pythagorean relationships in real life situations.

Pertinent and Contemporary Issues (PCIs):

- Safety and security: A learner takes care when using the ladder to carry out various activities on Pythagorean relationships.

Link to other subjects:

- Pre-Technical Studies: A learner applies Pythagorean Relationship in technical drawing, building construction, surveying in pre-technical studies.

Suggested learning resources:

- Print and Braille course Book, Geometrical set, adapted geometrical sets, digital devices with assistive technology such as magnifiers, screen readers and adapted keyboard.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
3.0 **MEASUREMENTS**	**3.2 Length** **(6 lessons)**	By the end of the sub-strand, the learner should be able to: a) write cm, dm, m, Dm, Hm in braille *(for learners with blindness),* b) convert units of length from one form to another involving cm, dm, m, Dm, Hm in learning situations, c) perform operations involving units of length in different situations, d) work out the perimeter of plane figures in different situations, e) write braille symbol for Pi ∏, *(for learners with blindness)* f) work out the circumference of circles in different situations, g) promote use of length in real life situations.	● Learners with blindness identify units of measuring length on braille work cards and practice writing them using braille writing equipment and materials. ● Learners generate conversion tables in print or braille involving cm, dm, m, Dm, Hm. ● Learners practise different operations involving length. ● In pairs groups learners to watch or listen to audio-visual clips on correct procedures of measuring length and working out perimeter. ● Learners with low vision use appropriate measuring tools with appropriate calibration to measure the length of various objects. Learners with blindness are guided to use tactile measuring instruments to undertake the activity. ● Learners measure and work out the perimeter of different plane figures including combined	1. Why do we use different units of measuring length? 2. How do we measure the perimeter of different objects?

			shapes. Learners with blindness to be paired with their sighted peers to give support when measuring perimeter of different plane figures. ● Learners with blindness to identify symbols for Pi on braille work cards and be guided to practice writing using braille equipment and materials. ● Learners with low vision measure the circumference and diameter of different circular objects and establish the relationship between circumference and diameter, which is Pi. ● Learners with blindness are guided to manipulate tactile circular objects to identify circular part and diameter then be supported to use thread and tactile ruler to measure circular part and diameter and relate them. ● Learners use Pi to practise working out the circumference of circles and use digital devices with assistive technology such as	

			scientific talking calculator to carry out calculations.	

Core Competencies to be developed:

- Communication and collaboration: A learner develops speaking, listening and teamwork as they work in pairs/groups when measuring lengths of various objects and also as they discuss the relationship between circumference and diameter.
- Self-efficacy: A learner develops high self-esteem as they practise different operations using length.
- Critical thinking and problem solving: A learner develops interpretation and inference skills as they relate circumference to diameter.

Values:

- Integrity: A learner enhances honesty as they carry out the activities and give the correct measurement.
- Unity**:** A learner enhances cooperation as they work in groups measuring lengths of various objects.

Pertinent and Contemporary Issues (PCIs):

- Social cohesion: A learner works in pairs and groups in measuring lengths of various objects.
- Global citizenship: A learner appreciates units of measurements especially the SI units of length.

Link to other subjects:

- Integrated Science: A learner uses units of measuring length.

Suggested Learning Resources:

- Tape Measure, Metre Rule, Tactile circular objects, digital devices with assistive technology such as magnifiers, refreshable braille displays., Print and Braille Course Book.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Key Inquiry Question(s)
3.0 **MEASUREMENTS**	**3.3 Area** **(**8 lessons)	By the end of the sub-strand, the learner should be able to: a) identify square metre (m^2), acres and hectares as units of measuring area, b) work out the area of rectangle, parallelogram, rhombus and trapezium in different situations, c) work out the area of circles in different situations, d) calculate the area of borders and combined shapes in real life situations, e) recognise use of area in real life situations.	● Learners generate conversion tables in print or braille involving acres and hectares as units of measuring area. ● Learners with low vision are guided to use cut outs to find the area of the plane figures. Learners with blindness are guided to manipulate and identify different shapes such as rectangle, parallelogram, rhombus and trapezium, and given one on one demonstration of their area using cut outs. ● Learners watch or listen to videos on how to cut out a circle to small sectors to demonstrate how to derive the formula for the area of a circle. Learners with blindness are given one on one demonstrations as they listen to the video. ● In pairs, learners cut out a circle into small sectors and rearrange to form a rectangle to derive the formula for the area of a circle. Learners with blindness	1. How do we derive the formula of a circle using plane figures? 2. How do we work out the areas of plane figures?

			to be paired with sighted peers during the activity. **Precaution:** Work on a stable and appropriate surface to avoid injuries when using sharp cutting tools. ● Learners to practise cutting out the plane figures of combined shapes into different shapes to work out the area. Learners with blindness to be paired by sighted peers during the activity.	

Core Competencies to be developed:

- Critical thinking and problem solving: A learner develops open mindedness and creativity skills as they cut out the circle into small sectors, joining them to create a rectangle and generate the formula of getting the area of a circle.
- Creativity and imagination: A learner develops experimenting skills as they combine different shapes to make patterns.
- Self-efficacy: A learner develops personal skills as they demonstrate how to derive the formula for the area of a circle.

Values:

- Responsibility: A learner enhances self-drive as they cut out the small sectors of the circle and join them up to form a rectangle.
- Integrity: A learner enhances discipline as they work out exact areas of different shapes.
- Unity: A learner enriches cooperation as they work in groups and share tasks in measuring the area.

Pertinent and Contemporary Issues PCIs:

- Safety and security: A learner takes safety precautions as they handle different instruments/tools to make cut-outs of different materials.
- Environmental education: A learner uses locally available materials in measuring the area.

Link to other subjects: -

- Pre-Technical Studies: A learner uses the knowledge learnt to effectively find the correct areas of different shapes in surveying.
- Creative Arts and Sports: A learner combines different shapes to make patterns.

Suggested Learning Resources:

- Appropriate Print and Braille course Book and Cut outs.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
3.0 MEASUREMENTS	**3.4 Volume and Capacity** **(8 lessons)**	By the end of the sub-strand, the learner should be able to: a) identify cubic metre (m^3) as a unit of volume in measurements, b) convert cubic metre (m^3) into cubic centimetre (cm^3) and vice versa in different situations, c) work out the volume of cubes, cuboids and cylinder in different situations, d) identify the relationship between cm^3, m^3 and litres in real life situations, e) relate volume to capacity in real life situations, f) work out the capacity of containers in real life situations,	● Learners to make a cube of sides 1 metre using locally available materials. Learners with blindness are paired with sighted peers during the activity. ● Learners with blindness are guided on how to identify and practise writing units of measuring volume; cubic metre (m^3) into cubic centimetre (cm^3) in braille. ● In groups, learners discuss and work out the conversions of cubic centimetre (cm^3) and cubic metre (m^3). ● In pairs, learners collect labelled containers of different volume and capacity from the environment. Learners with blindness are paired with sighted peers during the activity and are given verbal descriptions of the information on the containers.	1. How do we use volume and capacity in daily activities? 2. Why do we measure volume?

		g) promote use of volume and capacity in real life situations.	● Learners generate conversion tables in print or braille of volume and capacity ● Learners create models of cubes, cuboids, and cylinders which they will use to work out volume. Learners with blindness to be paired by sighted peers during the activity. ● Learners watch or listen to videos on volume and capacity.	

Core Competencies to be developed:

- Critical thinking and problem solving: A learner develops interpretation and inference skills as they create a conversion table of units of volume.
- Creativity and Imagination: A learner develops observation skills as they create models of cubes and cuboids.

Values:

- Responsibility: A learner enhances self-drive as they work in groups and share different tasks in making models.
- Peace: A learner enhances responsibility as they collaboratively discuss on how to make models for different volumes and capacities.

Pertinent and Contemporary Issues (PCIs):

- Environmental education: A learner uses big and small containers of different volumes from locally available resources.
- Safety and security: A learner takes safety precautions as they make models of cubes and cuboids.
- Education for Sustainable Development: A learner practises water conservation using containers of different capacities.

Link to other subjects:

- Creative Arts and Sports: A learner creates models of cubes and cuboids.
- Pre-Technical Studies: A learner creates models of cubes and cuboids.
- Integrated Science: A learner works out the volume of different substances.

Suggested Learning Resources:

● Cuboids, Cubes and Cylinders Realia, digital devices with assistive technology such as magnifiers, refreshable braille displays, Appropriate Print and Braille, Charts and Containers.

Strand	**Sub-Strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Suggested Key Inquiry Question(s)**
3.0 **MEASUREMENTS**	**3.5 Time, Distance and Speed** **(**8 lessons)	By the end of the sub-strand, the learner should be able to: a) identify units of measuring time in real life situations, b) convert units of time from one form to another in learning situations, c) convert units of measuring distance in learning situations, d) identify speed as distance covered per unit time in different situations, e) work out speed in kilometres per hour (km/h) and metres per second (m/s) in real life situations, f) convert units of speed from Km/h to m/s and vice versa in real life situations,	● Learners are guided to use analogue or digital adapted clocks to tell time in hours, minutes and seconds and discuss the units of time. ● Learners create conversion tables in print or braille on units of time. ● Learners discuss and estimate distances between two or more points and convert from km to m and vice versa. Learners with blindness to be paired by sighted peers in determining distance between two points and be guided to write (km/h) and (m/s) in braille. ● Learners engage in activities that involve distance and time such as track events to relate time, distance and speed. Learners with blindness are paired with sighted	1. Why do we relate distance, time and speed? 2. How is speed important in daily activities?

		g) reflect on use of time, distance and speed in real life situations.	peers as guides during the track events. ● In groups, learners discuss how long they take to travel from home to school, discuss the aspects of distance, and time taken to get to school. ● Learners to practise calculating speeds in km/h or m/s. ● Learners play digital games involving racing or watch marathon.	

Core Competencies to be developed:

- Critical thinking and problem solving: A learner develops interpretation and inference skills as they create conversion tables, relate and determine distance, time and speed.
- Self-efficacy**:** A learner develops personality skills as they observe punctuality in attending to different activities.

Values:

- Patriotism: A learner enhances loyalty as they observe road safety rules, including speed limits.
- Integrity: A learner enhances discipline as they observe punctuality and work out correct distances.

Pertinent and Contemporary Issues (PCIs):

- Disaster risk reduction (DRR) and safety: A learner observes safety in road and machines in relation to speed.

Link to other subjects:

- Integrated Science: A learner observes time as they carry out different experiments.
- Creative Arts and Sports: A learner participates in athletics during sporting activities.

Suggested Learning Resources:

- Analogue and adapted digital clock, Mater Rule, Tape Measure, Watches, Appropriate Print and Braille Course Books.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
3.0 **MEASUREMENTS**	**3.6 Temperature** (6 lessons)	By the end of the sub-strand, the learner should be able to: a) describe the temperature conditions of the immediate environment as warm, hot or cold, b) compare temperature using hotter, warmer, colder and same as in different situations, c) identify units of measuring temperature as degree Celsius and Kelvin in print and braille in different situations, d) convert units of measuring temperature from degree Celsius to Kelvin and vice-versa, e) work out temperature in degree Celsius and Kelvin in real life situations,	● Learners move to the field, observe the temperature in the environment and discuss the temperature conditions as warm, hot or cold. ● Learners discuss and test temperature of different substances using arbitrary methods like touching, for example cold, warm or hot water (exercise caution when dealing with hot substances) ● Learners with blindness are guided to read and write the units of measuring temperature; degree Celsius and Kelvin in braille from braille work cards. ● Learners are guided to identify tools of measuring temperature, for example, thermometers, digital talking thermometers that are in degrees Celsius. Learners with blindness are guided to manipulate the thermometers and identify its features. ● Learners work out conversions of temperature from degrees Celsius to Kelvin and vice versa	1. How does temperature affect our everyday lives? 2. How do we measure temperature?

		f) recognise temperature changes in the environment.	● Learners practise using digital devices with assistive technology such as screen readers or other resources to determine the temperature of different places in degree Celsius and Kelvin.	

Core Competencies to be developed:

- Communication and collaboration: A learner develops teamwork as they work in groups and use tools of measuring temperature.
- Digital literacy: A learner develops interaction with technology as they determine the temperature of different places using digital devices.

Values:

- Responsibility: A learner enhances diligence and excellence as they carefully handle tools of measuring temperature.
- Integrity: A learner enhances accountability as they give correct measurements of temperature.

Pertinent and Contemporary Issues (PCIs):

- Self-awareness: A learner takes their body temperatures.
- Safety and security: A learner works in a group and exercises caution when dealing with hot substances.

Link to other subjects:

- Integrated Science: A learner considers body temperatures to establish their health status and dressing appropriately.
- Social Studies**:** A learner considers climatic temperature changes.

Suggested Learning Resources:

- Thermometers, Digital Talking Thermometers, Cards, Thermometers, digital devices with assistive technology such as screen magnifiers, Print and Braille Course Book.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
3.0 MEASUREMENTS	**3.7 Money** (14 lessons)	By the end of the sub-strand, the learner should be able to: a) describe profit and loss scenarios in daily lives, b) work out profit and loss in real life situations, c) calculate the percentage profit and loss in different situations, d) calculate discount and percentage discount of different goods and services, e) calculate commission and percentage commission in real life situations, f) interpret bills at home, g) prepare bills in real life situations, h) work out postal charges in real life situations, i) identify mobile money services for different transactions,	● Learners brainstorm on cases where profit and loss arise as one interacts with money during buying and selling. ● Learners role-play shopping and selling activities involving profit, loss, discount and commission. ● Learners are guided to work out profit and loss involving different activities and settings. ● Learners work out percentage profit or loss from the role-play activities. ● Learners work out discounts and percentage discounts from model shopping activities. ● Learners work out commission and percentage commission from the role-play activities. ● Learners identify different types of bills and read the components of bills. Learners with blindness are provided with bills in braille text. ● Learners prepare bills of different items and expenses	1. How are considerations made when buying or selling? 2. How is mobile money transaction carried out? 3. Why do we use money in daily activities?

		j) work out mobile money transactions in real life situations, k) recognise use of money in day-to-day activities.	• Learners are guided to visit post offices to gather information on postal services and charges. • Learners work out postal charges in different situations. • In groups, learners discuss and identify mobile money services. • Learners are guided to work out mobile money transactions, for example, in sending or receiving money, credit and savings. • Learners generate bills, pay for goods and services, and other online transactions using digital devices with assistive technology.	

Core Competencies to be developed:

- Critical thinking and problem solving: A learner develops evaluation and decision-making skills as they work out discounts, commissions and mobile money as well as postal charges and bills.
- Communication and collaboration: A learner develops speaking and listening skills as they role-play negotiating for discounts and commissions.
- Citizenship: A learner develops active social skills as they work out discounts, commissions and mobile money in Kenyan currency.
- Self-efficacy: A learner acquires negotiation skills as they role-play negotiating for discounts and commissions.

Values:

- Patriotism: A learner develops loyalty as they work out and pay bills in Kenyan currency.
- Integrity: A learner enhances discipline as they pay bills and appreciate use of money.

Pertinent and Contemporary Issues (PCIs):

- Financial literacy: A learner practises work out of discounts, commissions and mobile money as well as postal charges and bills.
- Decision making: A learner develops creativity as they use money in paying bills and postal charges.

Link to other subjects:

- Pre-Technical Studies: A learner works out bills, discounts, commissions and postal charges.
- Life Skills Education: A learner applies negotiation skills in discounts and commissions.
- Languages: A learner gathers information on postal services and charges.

Suggested Learning Resources:

Digital devices with assistive technology such as magnifiers, Print and Braille Course Book and Text bill in Bra

Suggested Assessment Rubric

Indicator	**Exceeds Expectations**	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Ability to: • apply Pythagorean relationship to real life situations, • perform operations involving units of length in different situations, • calculate the area of borders and combined shapes in real life situations, • work out the volume of cubes, cuboids and cylinder in different situations, • work out speed in kilometres per hour (km/h) and metres per second (m/s) in real life situations, • work out temperature in degree Celsius and Kelvin in real life situations,	The learner demonstrates the seven skills.	The learner demonstrates five to six skills.	The learner demonstrates two to four skills.	The learner demonstrates one or no skill.

• calculate the percentage profit and loss in different situations,				

STRAND 4.0: GEOMETRY

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
4.0 GEOMETRY	**4.1 Angles** (8 lessons)	By the end of the sub-strand, the learner should be able to: a) relate different types of angles on a straight line in real life situations, b) solve angles at a point in learning situations, c) relate angles on a transversal in different situations, d) solve angles in a parallelogram in different situation, e) identify angle properties of polygons up to hexagon in different situations, f) relate interior angles, exterior angles and the number of sides of a polygon up to hexagon in different situations, g) solve angles and sides of polygons up to hexagon in learning situations,	• In groups, learners with low vision are guided to discuss positions of objects in the immediate environment in relation to angles. Learners with blindness are paired with sighted peers during the activity, and are supported to manipulate objects in the environment. • Learners with low vision are guided to draw straight lines with different angles using bold tip pencils on plane papers, measure using clear protractors and relate the angles. Learners with blindness be provided with tactile diagrams of angles and be guided to manipulate and identify the different angles. • Learners with low vision are guided to draw different angles at a point, measure, relate and work out angles at point. Learners with blindness are guided to manipulate tactile angles, measure them using a protractor with tactile calibrations then work out angles at a point.	How do we use angles in real life situations?

		h) reflect on use of angles in objects within the environment.	● Learners with low vision draw transversals, measure and relate angles. Learners with blindness be provided with transversals and be guided to manipulate, measure them using a protractor with tactile calibrations and relate angles. ● Learners with low vision are guided to draw parallelograms, measure and relate various angles. Learners with blindness are provided with tactile parallelograms and be guided to manipulate, measure using tactile measuring instruments and relate angles. ● Learners with low vision use cut-outs or drawings of different polygons up to hexagon, measure the interior angles and relate to the number of right angles formed. Learners with blindness be provided with tactile polygons up to hexagon and be guided to manipulate and identify the number of sides and interior angles and then use protractor with tactile calibrations marks to measure the interior angles. ● Learners are guided to work out angles and sides in different polygons up to hexagon. ● Learners are guided to draw angles at a point using digital devices with assistive	

			devices such as adapted keyboard or magnifiers or make angles using locally available materials.	

Core Competencies to be developed:

- Communication and collaboration: A learner enhances teamwork as they discuss in groups positions of objects in the immediate environment in relation to angles.
- Critical thinking and problem solving: A learner develops interpretation and inference as they draw, measure and relate different angles.
- Digital literacy: A learner develops interaction with technology as they use digital devices with assistive technology to learn more on algebraic inequalities and play digital games.

Values:

- Responsibility: A learner develops diligence as they explore positions of objects in the immediate environment in relation to angles.
- Unity: A learner enriches cooperation as they work in groups to use cut-outs or drawings of different polygons up to hexagon.

Pertinent and Contemporary Issues (PCIs):

- Safety and security: A learner works with others in a group to use cut-outs or drawings of different polygons up to hexagon.

Link to other subjects:

- Pre-Technical Studies: A learner uses cut-outs or drawings of different polygons up to hexagon learnt in Pre-technical studies to measure and relate different angles

Suggested Learning Resources:

- Bold tip pencils, Plane papers, Clear protractors, Protractor with tactile calibrations, tactile parallelograms, digital devices with assistive technology such as magnifiers, adapted keyboard and tactile transversals.

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)

4.0 GEOMETRY	**4.2.0 Geometrical Constructions** **(For learner with low vision)** **(12 lessons)**	By the end of the sub strand, the learner should be able to: a) measure different angles in shapes in different learning situations, b) bisect angles using a ruler and a pair of compasses only in learning situation, c) construct 90^0, 45^0, 60^0, 30^0 and other angles that are multiples of 7.5^0 using a ruler and a pair of compasses only in learning situation, d) construct different triangles using a ruler and a pair of compasses only in different situations, e) construct circles using a ruler and a pair of compasses only in different situations, f) recognise use of geometric constructions of different shapes in objects,) measure different angles in shapes in different learning situations.	• In groups, learners with low vision are guided to observe and measure diagrams of different angles in appropriate font and colour contrast showing while learners with blindness tactually explore embossed angles to identify the indicated sizes. • In groups, learners with low vision are guided to bisect and measure different angles on white plain papers using bold tip pencils, pairs of compasses and rulers calibrated in appropriate font and colour while learners with blindness use braille mathematical geometric instruments to make simple drawing and measure the common angles. • In groups, learners with low vision are guided to construct 90^0, 45^0 60^0, 30^0 including 120^0, 105^0 and practice drawing angles that are multiples of 7.5^0 using a pair of compasses and rulers calibrated in appropriate font and colour on an appropriate background contrast • In groups, learners with low vision are guided to construct different triangles on white plain papers, using bold tip pencils, pairs of compasses, adapted rulers calibrated in appropriate font and colour. while learners with blindness use braille	1. How do we use geometric constructions in real life situations? 2. Why do we bisect angles in geometric constructions?

			mathematical geometric instruments to make simple drawing and measure the common angles. ● In groups, learners with low vision are guided to construct circles on white plain papers, using bold tip pencils, rulers calibrated in appropriate font and colour and pairs of compasses. ● In groups, learners are guided to use digital devices with assistive technology such as adapted keyboard to draw angles and circles, watch videos on bisecting angles and constructing angles and circles or use paper cut outs to play games involving angles.	

Core Competencies to be developed:

- Creativity and imagination: A learner develops originality skills as they construct or draw angles, triangles and circles.
- Digital literacy: A learner uses digital devices to learn more on construction of angles, triangles and circles.

Values:

- Responsibility: A learner enhances resilience as they use adapted geometrical instruments carefully for construction of angles and circles.
- Unity: A learner enriches equality as they work in groups to draw and measure different angles.

Pertinent and Contemporary Issues (PCIs):

- Safety and security: A learner uses adapted geometrical instruments such as a pair of compasses and dividers with care to avoid injury to self or others.
- Social cohesion: A learner displays and appreciates work from different groups.

Links to other subjects:

Creative arts and sports: A learner constructs different angles of triangles and circles which they can use to improve on geometrical patterns in creative arts and sports.

Suggested learning resources:

Pair of compasses, Rulers, geometrical kit with tactile calibrations, cut outs of different angles and triangles, digital devices with assistive technology such as adapted key board.

Suggested Assessment Rubric for learners with Low vision

Level / **Indicators**	**Exceeds Expectations**	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**

Ability to: • measure different angles in shapes in different learning situations, • bisect angles using a ruler and a pair of compasses only • construct 90^0, 45^0 ,60^0, 30^0 and other angles that are multiples of 7.5^0 using a ruler and a pair of compasses only • construct different triangles using a ruler and a protractor only • construct circles using a ruler and a pair of compasses only	The learner demonstrates the five skills.	The learner demonstrates three to four skills.	The learner demonstrates two skills.	The learner demonstrates one or no skill.

Strand	**Sub-Strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Suggested Key Inquiry Question(s)**
4.0 GEOMETRY	**4.2.1 Geometrical Constructions**	By the end of the sub strand, the learner should be able to: a) measure different angles in shapes in different learning situations,	• Learners with blindness are guided to manipulate different angles in the environment and measure using protractor with tactile calibrations. • Learners with blindness are guided to bisect tactile angles by being given	1. How do we use relate different angles situations?

	(For learner with blindness) **(12 lessons)**	b) identify bisected angles using a ruler and a protractor only in learning situation, c) interpret bisected 90^0, 45^0 , 60^0,30^0 and other angles that are multiples of 7.5^0 in learning situation, d) describe properties of different tactile triangles in different situations, e) construct tactile circles in different situations, f) recognise the use of geometric constructions of different shapes in objects.	one on one demonstration of placing the protractor on targeted tactile lines, identifying and making a tactile mark representing half of the angle and using a ruler to join the tactile mark to the angle. • Learners with blindness are guided to draw 90^0, 45^0 60^0, 30^0 and other whole angles that are multiples of 7.5^0 by being given one on one demonstration of placing the tactile ruler to draw and mark targeted length on lines, placing the tactile protractor on the lines to mark the targeted angle, and join the mark to the line to form angles. • Learners with blindness are guided to draw different triangles by being given one on one demonstration of placing the tactile ruler to draw and mark targeted length on lines, placing the tactile protractor on the lines to mark the targeted angle, join the mark to the line to form angles and join the lines to form angles.	2. How do we interpret different bisected angles?

			• Learners with blindness are guided to construct circles using a ruler and a pair of compasses by being given one on one demonstration of, placing the tactile ruler to draw targeted radius on a line and placing the adapted pair of compass adjusted to the targeted radius on the line then make a circle. • Learners with blindness are guided to use digital devices with assistive technology such as adapted keyboard to draw angles and circles, use braille mathematical geometric instruments to make simple drawings ,listen to audio visual clips on bisecting and constructing angles and circles or use paper cut outs to play games involving angles	

Core Competencies to be developed:

- **Creativity and imagination**: A learner develops originality skills as they bisect tactile angles, triangles and circles.
- **Digital literacy**: A learner uses digital devices to learn more on construction of angles, triangles and circles.

Values:

- **Responsibility:** A learner enhances resilience as they use adapted geometrical instruments carefully for construction of angles and circles.
- **Unity:** A learner enriches equality as they work in groups to draw and measure different angles.

Pertinent and Contemporary Issues (PCIs):

- **Safety and security**: A learner uses adapted geometrical instruments such as a pair of compasses and dividers with care to avoid injury to self or others.

Social cohesion: A learner displays and appreciates work from different groups.

Links to other subjects:

Creative arts and sports: A learner constructs different angles of triangles and circles which they can use to improve on geometrical patterns in creative arts and sports.

Suggested learning resources:

Pair of compasses, Rulers, geometrical kit with tactile calibrations, Cut outs of different angles and triangles, digital devices with assistive technology such as adapted key board.

Suggested Assessment Rubric Learners with blindness

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to: • measure different angles in shapes in different learning situations, • identify bisected angles using a ruler and a protractor only in learning situation, • interpret bisected 90^0, 45^0, 60^0,30^0 and other angles that are multiples of 7.5^0 in learning situation,	The learner demonstrates the five skills.	The learner demonstrates three to four skills.	The learner demonstrates two skills.	The learner demonstrates one or no skill.

• describe properties of different tactile triangles in different situations, • construct tactile circles in different situations,				

STRAND 5.0: DATA HANDLING AND PROBABILITY

Strand	Sub-Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
5.0 DATA HANDLING AND PROBABILITY	**5.1 Data Handling** **(10 lessons)**	By the end of the sub-strand, the learner should be able to: a) state the meaning of data in learning situation, b) collect data from different situations, c) draw frequency distribution table of data from different sources, d) determine a suitable scale for graphs of data from different situations, e) draw pictographs of data from real life situations, *(for low vision)* f) interpret pictographs of data from real life situations, *(for learners with blindness)* g) draw bar graphs of data from different sources *(for learners with low vision)*, h) interpret bar graphs of data from real life situations *(for learners with blindness)*,	● In groups, learners discuss, collect and organise data from the immediate environment. ● Learners tally and represent the data in a frequency table. Learners with blindness are guided on how to align data appropriately in rows and columns using a braille machine. ● In groups, learners discuss and come up with a suitable scale to represent data in graphs. ● Learners with low vision discuss and use a suitable scale to draw pictographs from data. Learners with blindness to be given verbal descriptions of the pictographs. ● Learners with low vision discuss and use a suitable scale to draw bar graphs from data. Learners with blindness to be provided with tactile bar graphs and be guided to manipulate and identify its components. ● Learners with low vision discuss and interpret bar graphs of data. Learners with blindness manipulate tactile bar graphs and interpret the data.	1. Why do we collect data? 2. How do we represent data? 3. How do we interpret data?

		i) draw pie charts of data from real life situations, j) interpret pie charts of data from real life situations, k) draw a line graph of data from different situations, l) interpret travel graphs from real life situations, m) promote use of data in real life situations.	● Learners with low vision discuss and represent data on pie charts. Learners with blindness are provided with tactile pie charts and are guided to manipulate and identify its components. ● Learners with low vision discuss and interpret pie charts of data. Learners with blindness manipulate and interpret data on the pie charts. ● Learners with low vision use a suitable scale to represent data on line graphs. Learners with blindness are guided to manipulate a tactile line graph and interpret its data. ● Learners discuss and interpret travel graphs from real life situations ● In pairs, learners are guided to draw pie charts, pictographs and read data from bar graphs using device devices with assistive technology such as screen readers and magnifiers or watch or listen to audio visual clips relating to data.	
Core Competencies to be developed: ● Creativity and imagination: A learner develops observation skills as they present data in the form of pie charts and pictograms. ● Critical thinking and problem solving: A learner develops interpretation and inference skills as they interpret data from bar graphs, pictograms and pie charts.				
Values:				

● Responsibility: A learner enhances diligence as they collaborate to collect and present data in pictograms that may involve different resources. ● Peace: A learner enriches cooperation as they work in groups to collect and present data.
Pertinent and Contemporary Issues (PCIs): ● Decision making: A learner develops creativity as they present data that can be used to make informed decisions.
Link to other subjects: ● Creative Arts and Sports: A learner uses the knowledge learnt in draw pictographs and pie charts to creatively make different arts. ● Social Studies: A learner presents data in pie charts and pictographs that may involve populations.
Suggested Learning Resources: ● Tactile graphs and digital devices with assistive technology such as magnifiers and screen readers.

Suggested Assessment Rubric

Level / Indicator	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to: • draw frequency distribution table of data from different sources, • draw pictographs of data from real life situations, *(for low vision)* or interpret pictographs of data from real life situations, *(for learners with blindness)* • draw bar graphs of data from different sources *(for learners with low vision),* or interpret bar graphs of data from real life situations *(for learners with blindness),* • interpret travel graphs from real life situations,	The learner demonstrates the four skills.	The learner demonstrates three skills.	The learner demonstrates two skills.	The learner demonstrates one skill or none.

GUIDELINES FOR INTERGRATING COMMUNITY SERVICE LEARNING (CSL) PROJECT

Introduction

Community Service Learning (CSL) is an experiential learning strategy that integrates classroom learning and community service to enable learners reflect, experience and learn from the community. The CSL activity is hosted as a strand in Social Studies. The Social Studies teacher will be expected to coordinate teachers from other learning areas to carry out the integrated CSL class activity. Learners will be expected to apply knowledge, skills, attitudes and values from the different Learning Areas to undertake the integrated CSL class activity. Learners will undertake **one common** integrated class CSL activity following a 6-step milestone approach that is:

Milestone	**Description**
Milestone 1	**Problem Identification** Learners study their community to understand the challenges faced and their effects on community members.
Milestone 2	**Designing a solution** Learners create an intervention to address the challenge identified.
Milestone 3	**Planning for the Project** Learners share roles, create a list of activities to be undertaken, mobilise resources needed to create their intervention and set timelines for execution
Milestone 4	**Implementation** The learners execute the project and keep evidence of work done.

Milestone 5	Showcasing /Exhibition and Report Writing Exhibitions involve showcasing learners' project items to the community and reflecting on the feedback Learners write a report detailing their project activities and learnings from feedback
Milestone 6	**Reflection** Learners review all project work to learn from the challenges faced. They link project work with academic concepts, noting how the concepts enabled them to do their project as well as how the project helped to deepen learning of the academic concepts.

Assessment of CSL integrated Activity

Assessment for the integrated CSL activity will be conducted formatively. The assessment will consider both the process and end product. This entails assessing each of the milestone stages of the integrated CSL class activity. It will focus on 3 components namely: skills from various learning areas applied in carrying out the activity, core competencies developed and values nurtured.

Suggested PCIs	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Key Inquiry Question(s)**
The learners will be guided to consider the various PCIs provided in the various subjects in Grade 7 and choose one suitable to their context and reality	By the end of the CSL class activity, the learner should be able to: a) identify a problem in the school community through research, b) plan to solve the identified problem in the community,	● Learners brainstorm on pertinent and contemporary issues in their school that need attention. Learners choose a PCI that needs immediate attention and explain why. ● Learners discuss possible solutions to the identified issue and propose the	1. How does one determine community needs? 2. Why is it necessary to be part of a community?

	c) design solutions to the identified problem, d) implement solutions to the identified problem, e) share the findings with relevant actors, f) reflect on own learning and relevance of the project, g) appreciate the need to belong to a community	most appropriate solution to the problem. ● In groups, learners discuss ways and tools they can use to collect information on a problem (questionnaires, interviews, observation) and develop the tools for collecting the information/data ● Learners identify resources they need for the activity and collect the information/data using various means. ● Learners develop various reporting documents on their findings and develop a tool to report on their findings. ● In groups, learners implement the project. ● Learners collect feedback from peers and the school community regarding the CSL activity. ● Learners share the report on activity through various media to peers and school community. ● In groups, learners discuss the strengths and weaknesses of the implemented project and lessons learnt.	3. How can one demonstrate a sense of belonging

		● Learners reflect on how the project enhanced their own learning while at the same time facilitating service on an issue in the school community.	

Key Component of CSL developed:

a. Identification of a problem in the community through research.

b. Planning to solve the identified problem.

c. Designing solutions to the identified problem.

Core competencies to be developed:

- **Communication and collaboration**: A learner develops speaking skills and teamwork as they make the preparations in groups and conduct discussions on best ways of carrying out the project.
- **Self-efficacy**: A learner develops the skills of self-awareness and leadership as they undertake the CSL project
- **Creativity and imagination**: A learner will come up with creative ways of solving the identified community problem
- **Critical thinking and problem solving**: A learner will demonstrate autonomy in identifying a community need, exploring plausible solutions and making necessary preparations to address the problem.
- **Digital literacy**: A learner can use technology as they research on a community problem that they can address.
- **Learning to learn:** A learner gains new knowledge and skills as they identify a community problem to be addressed and make preparations to carry out the project.
- **Citizenship**: A learner enhances love for a country as they choose a PCI that needs immediate attention in the community.

Values:

- **Integrity**: A learner enhances discipline as they carry out research using digital devices and print media as they identify a community problem to address.

- **Respect:** A learner enhances patience as they brainstorm on pertinent and contemporary issues in their community that need attention.

Pertinent and Contemporary Issues (PCIs):

- **Social cohesion** :A learner discusses possible solutions to the identified issue.
- **Critical thinking**: A learner discusses possible solutions to the identified issue.

Suggested Learning Resources:

- Digital devices with assistive technology

Suggested Assessment Rubric

Level / Indicator	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Ability to: • identify a problem in the school community through research, • plan to solve the identified problem in the community, • design solutions to the identified problem, • implement solutions to the identified problem,	The learner demonstrates the four skills.	The learner demonstrates three skills.	The learner demonstrates two skills.	The learner demonstrates one or no skill.

APPENDIX 1:
LIST OF ASSESSMENT METHODS, LEARNING RESOURCES AND NON-FORMAL ACTIVITIES

Strand	Sub-Strand	Suggested Assessment Methods	Suggested Non-Formal Activities
NUMBERS	Whole Numbers	Class activities Class written tests in print and braille. Out of school/home assignments or activities	Prepare or improvise number charts and different place value apparatus.
	Factors	Class activities Class written tests in print and braille. Out of school/home assignments	
	Fractions	Class activities Class written tests in print and braille. Out of school/home assignments	
	Decimals	Class activities Class written tests in print and braille. Out of school/home assignments	
	Squares and square roots	Class written tests in print and braille. Class activities	
ALGEBRA	Algebraic Expressions	Class activities Class written tests Out of school/home assignments or activities	Carry out activities involving classifying objects in their immediate environment according to given attributes such as similarities or differences. This can be done at home. Take photos and share with class or school. Use the concept of classification of objects or

			things at school and home to be orderly.
	Linear Equations	Class activities Class written tests in print and braille. Out of school/home assignments or activities	
	Inequalities	Class written tests in print and braille. Class activities	
MEASUREMENT	Pythagorean Relationship	Class activities Class written tests in print and braille. Out of school/home assignments	
	Length	Class written tests in print and braille. Class activities	
	Area	Class written tests in print and braille. Out of school/home assignments or activities	
	Volume and Capacity	Class written tests in print and braille. Class activities Out of school/home assignments or activities	Measure volume of liquids using containers of different sizes from smallest to biggest. Relate this to packaging of goods such as water, milk and other things in the market place and how this affects consumer awareness and protection.
	Mass	Class written tests in print and braille. Class activities	Make an improvised weighing machine/beam balance that can be used in markets to weigh 1 or 1/2kgs
	Time, distance and speed	Class written tests in print and braille.	

		Out of school/home assignments or activities	
	Temperature	Class activities Out of school/home assignments or activities	Record weather changes for a period of time, for example a month/term, and discuss how this affects the way one dresses.
	Money	Class written tests in print and braille. Class activities Out of school/home assignments or activities	
GEOMETRY	Angles	Class activities Class written tests in print and braille. Out of school/home assignments or activities	
	Geometric constructions	Class activities Class written tests in print and braille.	
DATA HANDLING AND PROBABILITY	Data handling	Class activities Class written tests in print and braille.	Undertake a project that may involve data collection and presentation

APPENDIX 2:

USE OF ICT DEVICES

The following ICT devices may be used in the teaching and learning of mathematics at this level:

1. Learner digital devices (LDD),
2. Teacher digital devices (TDD),
3. Mobile phones,
4. Digital clocks (use of other clocks is also encouraged)
5. Television sets,
6. Videos,
7. Cameras,
8. Projectors,
9. Radios,
10. DVD players and CDs,
11. Scanners,
12. Internet and others.