



**REPUBLIC OF KENYA
MINISTRY OF EDUCATION**

JUNIOR SCHOOL CURRICULUM DESIGN

MATHEMATICS

GRADE 7

FOR LEARNERS WITH PHYSICAL IMPAIRMENT



KENYA INSTITUTE OF CURRICULUM DEVELOPMENT

A Skilled and Ethical Society

First Published in 2022

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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 Physical 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

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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 Physical 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.

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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 Physical 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 panelists; 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 Physical 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 Physical impairment for transition to Grade eight.

A handwritten signature in blue ink, appearing to read 'Charles O. Ong'ondo', with a horizontal line underneath the name.

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NATIONAL GOALS OF EDUCATION

1. 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.

i) 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 following in the wake of rapid modernization. Education should assist our youth to adapt to this change.

ii) 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 up a modern and independent economy which is in need of an adequate and relevant domestic workforce.

iii) Technological and Industrial Needs

Education in Kenya should provide learners with the necessary skills and attitudes for industrial development. Kenya recognizes 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.

2. Promote individual development and self-fulfillment

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.

3. 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.

4. **Promote social equity and responsibility**

Education **respect** 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.

5. **Promote for and development of Kenya's rich and varied cultures**

Education should instill 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.

6. **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.

7. **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	5
2.	Kiswahili / Kenya Sign Language	4
3.	Mathematics	5
4.	Religious Education	4
5.	Social Studies	4
6.	Integrated Science	5
7.	Pre-Technical Studies	4
8.	Agriculture and Nutrition	4
9.	Creative Arts and Sports	5
	Pastoral /Religious Instructional Program	1
Total		40 + 1

LEARNING OUTCOMES FOR JUNIOR SCHOOL

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

- a) Apply literacy, numeracy and logical thinking skills for appropriate self-expression.
- b) Communicate effectively, verbally and non-verbally, in diverse contexts.
- c) Demonstrate social skills, spiritual and moral values for peaceful co-existence.
- d) Explore, manipulate, manage and conserve the environment effectively for learning and sustainable development.
- e) Practise relevant hygiene, sanitation and nutrition skills to promote health.
- f) Demonstrate ethical behaviour and exhibit good citizenship as a civic responsibility.
- g) Appreciate the country's rich and diverse cultural heritage for harmonious co-existence.
- h) Manage pertinent and contemporary issues in society effectively.
- i) Apply digital literacy skills for communication and learning.

ESSENCE STATEMENT

We live in a world of Mathematics whereby we count, add, subtract, multiply or divide quantities and substances throughout our daily interactions. Mathematics involves understanding numbers and the numerical operations used to develop strategies for mental mathematical problem-solving skills, estimation and computational fluency. We live in a world of space, shape and structures. It is impossible to think of a world without Mathematics. It is applied in the economic activities, scientific, social, religious and political worlds. It is therefore imperative that children are taught Mathematics from early years.

In Junior school, Mathematics builds on the competencies acquired by the learner 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 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 emphasizes on STEM areas.

SUBJECT GENERAL LEARNING OUTCOMES

By the end of the Junior School School, the learner 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 organize 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.
- 10) 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
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; <ol style="list-style-type: none"> a) use place value and total value of digits up to hundreds of millions in real life, b) read and write numbers in symbols up to hundreds of millions in real life situations, c) read and write numbers in words up to millions for fluency, d) round off numbers up to the nearest hundreds of millions in real life situations, e) classify natural numbers as even, odd and prime in different situations, f) apply operations of whole numbers in real life situations, g) identify number sequence in different situations, 	The learner is guided to: <ul style="list-style-type: none"> ● Identify and write in purposive groups/pairs or as individuals place value and total value of digits using place value apparatus. Learners with manipulation difficulties could use alternative functional part of the body or adapted assistive devices as they identify and write place/total value of numbers. ● Read and write numbers in symbols on number cards or charts. Learners with speech difficulties could use alternative communication modes as they read symbols on number charts. ● Read and write numbers in purposive groups/pairs or as individuals in words on 	<ol style="list-style-type: none"> 1. Why do we write numbers in words and/or symbols? 2. How do we apply writing numbers in words or symbols in real life?

		<p>h) create number sequence for playing number games,</p> <p>i) appreciate use of whole numbers in real life situations.</p>	<p>number cards or charts and practice writing dummy cheques for different sums of money. More time could be allowed for learners with speech difficulties.</p> <ul style="list-style-type: none"> ● Work in purposive groups/pairs or as individuals to prepare and use place value charts to round off numbers. ● Play a number game, make number cards, sort and classify numbers in purposive groups/pairs according to those that are even, odd or prime. Create more space for learners with mobility difficulties as they play a number game or classify numbers. ● Work out or perform 2, 3 or more combined operations in the correct order using digital devices in purposive groups/pairs or as 	
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			<p>individuals. Learners with manipulation difficulties could use any functional part of the body as they interact with digital devices. Adjust light intensity on digital devices for learners with visual difficulties.</p> <ul style="list-style-type: none">● Identify the number patterns to work out number sequences.● Play games of creating number puzzles in purposive groups/pairs that involve number sequences using it devices or other materials. Learners with manipulation difficulties could use adapted digital devices when playing number games, adjust light intensity on it devices for learners with visual difficulties.	
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Core Competencies to be developed:

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

Values:

- Respect: as the learner works in teams and play number games.
- Unity: as the learner works towards achieving set goals of making number puzzles.
- Peace: as the learner shares different roles in playing games.

Pertinent and contemporary Issues (PCIs):

- Financial literacy: as the learner practices writing dummy cheques for different sums of money.
- Self-esteem: as the learner creates number puzzles that involve number sequences.

Link to other subjects

Languages: Language skills are enhanced as the learner writes numbers in words.

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) test divisibility of numbers by 2, 3, 4, 5, 6, 8, 9,10 and 11 in different situations, b) express composite	The learner is guided to: <ul style="list-style-type: none">● Determine divisibility of numbers in purposive groups/pairs using regrouping and divisibility rule work sheet.	<ol style="list-style-type: none">1. How do we use factors in day to day activities?2. How do we apply the GCD and the LCM

		<p>numbers as a product of prime factors in different situations,</p> <p>c) work out the Greatest Common Divisor (GCD) and the Least Common Multiples (LCM) of numbers by factor method in different situations,</p> <p>d) apply the Greatest Common Divisor (GCD) and the Least Common Multiples (LCM) in real life situations,</p> <p>e) reflect on use of factors in real life situations.</p>	<p>Learners with manipulation difficulties could use alternative functional part of the body or assistive technology as they determine divisibility of numbers</p> <ul style="list-style-type: none"> ● Write factors of composite numbers by factorization, factor tree, and factor rainbow in charts, colour charts or cards in purposive groups/pairs using locally available materials. Learners with manipulation difficulties could use adapted locally available tools as they perform the activity. ● Use factors to determine the lcm and the gcd using number cards or charts ● Use it to access factors of numbers including songs/poems or games on divisibility tests in purposive groups/pairs. Learners with manipulation difficulties could use any alternative functional part of the body or 	<p>in day to day activities?</p>
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			<p>assistive technology as they interact with adapted it devices to search for information.</p> <ul style="list-style-type: none"> ● Work out in purposive groups/pairs or as individuals application questions and solve problems relating to the GCD and the LCM in real life situations. More time could be allowed for learners with manipulation difficulties. ● Determine the GCD and LCM of numbers using it devices in purposive groups/pairs to perform exercises on factors such as matching activities or games. Adapted digital devices could be allowed for learners with manipulation difficulties during this activity. 	
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> ● Creativity and imagination: as the learner works to create songs and poems on divisibility tests. ● Critical thinking and problem solving: as the learner applies the GCD and the LCM in solving real life problems. 				
<p>Values:</p> <ul style="list-style-type: none"> ● Unity: as the learner sings together or solve puzzles on factors. ● Respect for self and others: as the learner works to write factors of composite numbers using factor tree. 				

Pertinent and contemporary Issues (PCIs):

Self-awareness: as the learner works in teams to create songs and poems on divisibility tests.

Link to other subjects

Agriculture and Nutrition: as the learner applies LCM or GCD as they plan for smallest or largest containers for measuring different substances.

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	The learner is guided to: <ul style="list-style-type: none"> ● Discuss in purposive groups/pairs or as individuals and arrange fractions in increasing and decreasing order using different strategies. Learners with speech difficulties could use alternative and augmentative modes of communication to share their views. ● Arrange fractions in ascending or descending order in purposive groups/pairs or as individuals using fraction cards. Learners with manipulation difficulties could arrange 	1. How do we use fractions in daily activities?

		<p>and a mixed fraction in real life situations,</p> <p>g) divide a whole number by fractions in different situations,</p> <p>h) identify number sequence involving fractions in different situations,</p> <p>i) create number sequence involving fractions for playing number games,</p> <p>j) recognise use of fractions in real life situations.</p>	<p>fractions using alternative part of the body or adapted digital devices.</p> <ul style="list-style-type: none"> ● Add and subtract fractions in cut outs, cards, charts and concrete objects ● Multiply and divide fractions in cut outs, cards, charts and models. More time could be allowed for learners with speech difficulties as they interact. ● Use flip cards to discuss reciprocals in purposive groups/pairs or as individuals. ● Play games of creating number puzzles that involve fractions number sequences using it devices or other materials in purposive groups/pairs or as individuals. Create adequate space for learners using mobility devices as they play number puzzles games. Learners with manipulation difficulties could use any 	
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			<p>alternative functional part of the body as they interact with adapted it devices to play games. Adjust light intensity for learners sensitive to light.</p> <ul style="list-style-type: none"> ● Create a fraction sequence game that can be used for play and learning. Safety standards should be considered for all learners during the creation of a fraction sequence game to be used. ● Use it devices to work out operations of fractions. Adapted it devices could be used for learners with manipulation difficulties 	
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> ● Creativity and imagination: as the learner creates puzzles involving fractions. ● Critical thinking and problem solving: as the learner applies fractions using cut outs, cards, charts and models from local resources. 				
<p>Values:</p> <ul style="list-style-type: none"> ● Social justice: as the learner shares cards and charts fairly to multiply and divide fractions. ● Responsibility: as the learner performs multiplication and division of fractions using play or IT resources. 				

Pertinent and Contemporary Issues (PCIs):

- Citizenship: as the learner carries out division of fractions which implies sharing of resources.
- Social cohesion: as the learner shares items at home and outside school using fractions.

Link to other subjects:

Agriculture and Nutrition: as the learner gives fractional portions of animal feeds or in food production.

Sub Strand: Decimals

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.	The learner is guided to: ● Discuss, state and use the place value and the total value of decimals using place value apparatus and worksheets in purposive groups/pairs or as individuals. Learners with speech difficulties could use alternative communication modes or adapted digital devices during discussion. ● Multiply and divide decimals using cut outs, cards, charts and models. Learners with manipulation difficulties could use any alternative functional	1. How do you use decimals in daily activities?

			<p>part of the body to carry out the activity.</p> <ul style="list-style-type: none"> ● Use calculators and other it devices in purposive groups/pairs or as individuals to work out operations of decimals. ● Play games involving multiplication and division of decimals in purposive groups/pairs. Create more space for learners using mobility devices. Safety for all learners should be observed as they play games. 	
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> ● Critical thinking and problem solving: as the learner identifies and uses the place value and the total value of decimals using place value apparatus and worksheets. ● Digital literacy: as the learner uses IT devices to learn more on decimals. 				
<p>Values</p> <ul style="list-style-type: none"> ● Unity: as the learner works together to multiply and divide decimals using cut outs, cards, charts and models. ● Responsibility: as the learner performs multiplication and division of decimals and take care of cards, charts and models. 				
<p>Pertinent and Contemporary Issues (PCIs) Safety: is enhanced as the learner makes paper cut outs or other materials and models.</p>				
<p>Link to other subjects Learner relates quantities expressed in decimal forms in measurement as learnt from different concepts in Integrated Science.</p>				

Sub Strand: Squares and Square Roots

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; <ol style="list-style-type: none"> 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, appreciate use of squares and square roots in real life situations. 	The learner is guided to: <ul style="list-style-type: none"> Work out in purposive groups/pairs or as individuals squares of numbers using: <ul style="list-style-type: none"> ✓ Grids and charts learners with manipulation difficulties could use enlarged grids and charts. ✓ Long multiplication method more time could be allowed for learners with manipulation difficulties. ✓ Using calculators/adapted calculator. Learners with manipulation difficulties could use any functional part of the body to perform the tasks. Work out square roots of number in purposive groups/pairs or as individuals using: <ul style="list-style-type: none"> ✓ Factors method 	<ol style="list-style-type: none"> How do we apply squares and square roots in daily activities?

			<ul style="list-style-type: none"> ✓ Division method ✓ Calculators • Use it devices in purposive groups/pairs or as individuals to play games involving squares and square roots. Create a conducive environment for learners with mobility difficulties as they play. Adjust light intensity for learners with visual difficulties as they interact with it devices. 	
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> • Critical thinking and problem solving: Reflection as the learner uses grid squares and charts to find squares and square roots of numbers. • Digital literacy: Interacting with technologies as the learner uses IT devices to work out squares and square roots of numbers. 				
<p>Values</p> <ul style="list-style-type: none"> • Respect: as the learner appreciates each other's contribution in using grids and charts • Unity: as the learner shares and works out the factors of numbers to get the square roots of numbers. 				
<p>Pertinent and Contemporary Issues (PCIs)</p> <p>Environmental education: as the learner considers shapes of different objects in the school compound especially the ones that are squares.</p>				
<p>Link to other subjects</p> <p>Pre-Technical Studies: in areas such as carpentry and technical drawing contribute to squares and roots of numbers.</p>				

Suggested Assessment Rubric				
Level Indicator	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to use place value and total value of digits up to hundreds of millions and decimals	The learner uses place value and total value of digits up to hundreds of millions and decimals correctly and systematically	The learner uses place value and total value of digits up to hundreds of millions and decimals correctly	The learner uses place value or total value of digits up to hundreds of millions or decimals correctly	The learner uses place value or total value of digits up to millions.
Ability to read and write numbers in symbols up to hundreds of millions and in words up to millions	The learner reads and writes numbers in symbols up to hundreds of millions and in words up to millions correctly and proficiently	The learner reads and writes numbers in symbols up to hundreds of millions and in words up to millions correctly	The learner reads or writes numbers in symbols up to hundreds of millions or in words up to millions correctly	The learner reads or writes numbers in symbols up to millions or in words up to hundreds
Ability to classify natural numbers as even, odd and prime	The learner classifies natural numbers as even, odd and prime systematically and accurately	The learner classifies natural numbers as even, odd and prime accurately	The learner classifies natural numbers as even or odd or prime accurately	The learner classifies natural numbers as even or odd.
Ability to apply all of the basic operations of whole numbers up to hundreds of millions	The learner applies all of the basic operations of whole numbers up to hundreds of millions accurately and	The learner applies all of the operations of whole numbers up to hundreds of millions accurately	The learner applies any 3 of the basic operations of whole numbers up to hundreds of millions partially accurately	The learner applies any 2 of the basic operations of whole numbers up to millions

(addition, subtraction, multiplication and division)	proficiently			
Ability to identify and create number sequence	The learner identifies and creates number sequence correctly and consistently	The learner identifies and creates number sequence correctly	The learner identifies or creates number sequences correctly	The learner identifies number sequences correctly
Ability to test divisibility of numbers by 2, 3, 4, 5, 6, 8, 9,10 and 11	The learner tests divisibility of numbers by 2, 3, 4, 5, 6, 8, 9,10 and 11 accurately and systematically	The learner tests divisibility of numbers by 2, 3, 4, 5, 6, 8, 9,10 and 11 accurately	The learner tests divisibility of most numbers by any 5 of 2, 3, 4, 5, 6, 8, 9,10 or 11 accurately	The learner tests divisibility of a few numbers by any 4 of 2, 3, 4, 5, 6, 8, 9,10 or 11
Ability to express composite numbers as a product of prime factors	The learner expresses composite numbers as a product of prime factors correctly and writes the answer in power form	The learner expresses composite numbers as a product of prime factors correctly	The learner expresses most of the composite numbers as a product of prime factors correctly	The learner expresses a few of the composite numbers as a product of the prime factors
Ability to work out and apply the Greatest Common Divisor (GCD) and the Least Common Multiples (LCM) of numbers by factor method	The learner works out and applies the Greatest Common Divisor (GCD) and the Least Common Multiples (LCM) of numbers by factor method correctly and systematically	The learner works out and applies the Greatest Common Divisor (GCD) and the Least Common Multiples (LCM) of numbers by factor method correctly	The learner works out or applies the Greatest Common Divisor (GCD) and the Least Common Multiples (LCM) of numbers by factor method correctly	The learner works out or applies the Greatest Common Divisor (GCD) or the Least Common Multiples (LCM) of numbers by factor method

Ability to add, subtract and multiply fractions	The learner adds, subtracts and multiplies fractions correctly and systematically	The learner adds, subtracts and multiplies fractions correctly	The learner adds, subtracts or multiplies fractions correctly	The learner adds or subtracts fractions
Ability to determine reciprocals of fractions and divide fractions	The learner determines reciprocals of fractions and divides fractions correctly and systematically	The learner determines reciprocals of fractions and divides fractions correctly	The learner determines reciprocals of fractions or divides fractions correctly	The learner determines reciprocals of fractions
Ability to multiply and divide decimals by a whole number and by a decimal	The learners multiplies and divides decimals by a whole number and by a decimal correctly and systematically	The learners multiplies and divides decimals by a whole number and by a decimal correctly	The learners multiplies or divides decimals by a whole number or by a decimal correctly	The learners multiplies or divides decimals by a whole number
Ability to determine the squares and square roots of whole numbers, fractions and decimals	The learner determines the squares and square roots of whole numbers, fractions and decimals correctly and systematically	The learner determines the squares and square roots of whole numbers, fractions and decimals correctly	The learner determines the squares or square roots of whole numbers, fractions or decimals correctly	The learner determines the squares and square roots of whole numbers

STRAND 2.0: ALGEBRA

Sub Strand: Algebraic Expressions

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 strands the learner should be able to; a) form algebraic expressions from real life situations, b) form algebraic expressions from simple algebraic statements in real life situations, c) simplify algebraic expressions in real life situations, d) appreciate use of algebraic expressions in real life.	The learner is guided to: <ul style="list-style-type: none"> ● Discuss and classify objects in their immediate environment in purposive groups/pairs or as individuals according to given attributes such as similarities or differences. Learners with speech difficulties could use alternative communication modes during discussion. ● Discuss how to form algebraic expressions from the classified objects. Learners with manipulation difficulties could use any functional part of the body to perform the task. ● Read and interpret algebraic statements to form algebraic expressions. 	How do we use algebraic expressions in daily activities?

			<ul style="list-style-type: none"> ● Discuss in purposive groups/pairs or as individuals how to simplify algebraic expressions from the classified objects. ● use it in purposive groups/pairs or as individuals to work out exercises and activities in algebra or drag and drop activities to group similar objects. Learners with manipulation difficulties could use alternative functional part of the body or assistive technology to interact with it devices/ adapted digital devices. Light intensity could be controlled for learners who are sensitive to light. 	
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> ● Communication and collaboration: Speaking, listening and team work; as the learner discusses on formation of algebraic expressions. ● Critical thinking and problem solving: Interpretation and inference; as the learner factorizes algebraic expressions. 				
<p>Values:</p> <ul style="list-style-type: none"> ● Unity: as the learner classifies or groups similar objects during the discussions. 				

- Respect: as the learner appreciates each other's contribution while discussing and forming algebraic expressions.

Pertinent and Contemporary Issues (PCIs):

- Environmental education: as the learner classifies objects from the environment.
- Friendship formation: as the learner discusses on formation of algebraic expressions.

Link to other subjects

Languages: enhances learner's interpreting skills for statements to form algebraic expressions.

Sub Strand: Linear Equations

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) form linear equations in one unknown in different situations, b) solve linear equations in one unknown in different situations, c) apply linear equations in one unknown to real life situations, d) reflect on use of linear equations in real life situations.	The learner is guided to: ● Role play activities involving equations with one unknown for example weighing using beam balance. Also dramatize shopping activities. Create a conducive environment and adequate space for learners with mobility difficulties and ensure safety for all learners as they perform the activity. ● Discuss in purposive groups/pairs or as individuals how to form and solve linear equations generated from role play activities. Learners with	1. How do we use linear equations in real life? 2. Why do we use linear equations in real life?

			<p>speech difficulties could use alternative communication modes as they share their views.</p> <ul style="list-style-type: none"> ● Use it devices or other resources in purposive groups/pairs to form and solve linear equations. Adjust light intensity for learners with visual difficulties as they interact with it devices. 	
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> ● Communication and collaboration: Speaking, listening and team work as the learner role plays activities involving equations in one unknown. ● Self-efficacy: Self-awareness skills as the learner carries out weighing using beam balance and role play different activities. ● Learning to learn: Organizing own learning as the learner applies linear equations in real life. 				
<p>Values</p> <ul style="list-style-type: none"> ● Integrity as the learner shares resources as per the given equation (conditions). ● Responsibility: as the learner uses a given letter in the equation to represent an item. 				
<p>Pertinent and Contemporary Issues (PCIs): Self – esteem as the learner participates in role play activities like weighing and shopping that will lead to equations in one unknown.</p>				
<p>Link to other subjects Pre-Technical Studies: as the learner uses IT devices in forming and solving equations.</p>				

Sub Strand: Linear Inequalities

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested key inquiry question(s)
2.0 Algebra	2.3 Linear Inequalities (8 lessons)	<p>By the end of the sub strand the learner should be able to;</p> <ul style="list-style-type: none"> a) apply inequality symbols to inequality statements in learning situations, b) form simple linear inequalities in one unknown in different situations, c) illustrate simple inequalities on a number line, d) form compound inequality statements in one unknown in different situations, e) illustrate compound inequalities in one unknown on a number line, f) appreciate use of linear inequalities in real life. 	<p>The learner is guided to:</p> <ul style="list-style-type: none"> ● Use inequality cards in purposive groups/pairs or as individuals to complete simple inequality statements using symbols. Learners with manipulation difficulties could use any alternative functional part of the body or assistive devices to carry out the activity. ● Use inequality cards/objects to form simple linear inequalities with one unknown. ● Draw/ trace/stamp/mount in purposive groups/pairs or as individuals and represent simple inequality statements on a number line. Learners with manipulation difficulties could use alternative part of the body or assistive technology to draw and represent simple inequality. ● Use inequality cards to 	<ol style="list-style-type: none"> 1. How do we use linear inequalities in real life? 2. Why do we use linear inequalities in real life?

			<p>complete compound inequality statements. Have examples that may involve gender such as number of boys and girls in class</p> <ul style="list-style-type: none"> ● Draw/trace/mount/stamp and represent compound inequality statements on a number line. More time could be allowed for learners with manipulation difficulties to complete the task. ● Use it devices in purposive groups/pairs or as individuals in graphing tools to present solutions to inequalities. Learners with manipulation difficulties could use adapted digital devices to perform the task. Adjust light intensity for learners who are sensitive to light. Learners with postural defects or short stature could be appropriately positioned as they use the devices. 	
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<p>Core Competencies to be developed</p> <ul style="list-style-type: none"> ● Communication and collaboration: as the learner discusses on how to form the linear inequalities. ● Creativity and Imagination: as the learner draws and represents inequality statements on a number line.
<p>Values</p> <p>Integrity: as the learner observes and adheres to the conditions of the given inequalities.</p>
<p>Pertinent and Contemporary Issues (PCIs)</p> <p>Gender equality: gender representation for inclusivity, for example number of boys and girls in a class or school.</p>
<p>Link to other subjects</p> <p>Language: enhances learner’s skills to form linear inequalities from different situations in statement form.</p>

Suggested Assessment Rubric				
Level Indicator	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to form and simplify algebraic expressions	The learner forms and simplifies algebraic expressions correctly and proficiently	The learner forms and simplifies algebraic expressions correctly	The learner forms or simplifies algebraic expressions correctly	The learner forms algebraic expressions
Ability to form, solve and apply linear equations in one unknown	The learner forms, solves and applies linear equations in one unknown accurately and systematically	The learner forms, solves and applies linear equations in one unknown accurately	The learner forms, solves or applies linear equations in one unknown accurately	The learner forms linear equations in one unknown accurately

<p>Ability to apply inequality symbols to inequality statements, form simple and compound linear inequalities in one unknown and illustrate inequalities on a number line</p>	<p>The learner applies inequality symbols to inequality statements, forms simple and compound linear inequalities in one unknown and illustrates inequalities on a number line correctly and systematically</p>	<p>The learner applies inequality symbols to inequality statements, forms simple and compound linear inequalities in one unknown and illustrates inequalities on a number line correctly.</p>	<p>The learner applies inequality symbols to inequality statements, forms simple or compound linear inequalities in one unknown or illustrates inequality on a number line correctly</p>	<p>The learner applies inequality symbols to inequality statements, forms simple or compound linear inequalities in one unknown partially correctly</p>
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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)	<p>By the end of the sub strand, the learner should be able to;</p> <ul style="list-style-type: none"> a) recognize 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. 	<p>The learner is guided to:</p> <ul style="list-style-type: none"> ● Draw trace/stamp/mount in purposive groups/pairs and represent practical cases of right-angled triangle of an object leaning on a wall at different positions and recognize the sides as the hypotenuse the height and the base. For example, a ladder leaning on a wall. Learners with manipulation difficulties could use any alternative functional part of the body or assistive technology to carry out the activity ● Do a variety of activities for example, counting squares on different sides of a 3, 4, 5 right angled-triangle, establish the 	<p>How do we use Pythagorean relationship in real life situations?</p>

			<p>Pythagorean relationship and practice using other right angled-triangles. Learners with speech difficulties could use alternative communication modes as they carry out the activity.</p> <ul style="list-style-type: none"> ● Work out exercises related to Pythagorean relationship. More time could be allowed for learners with manipulation difficulties to complete the exercises. ● Create Pythagorean relationship puzzles. ● Use it devices and other resources in purposive groups/pairs to explore the use of Pythagorean relationship in daily life. Learners with manipulation difficulties could use any alternative functional part of the body or assistive technology to interact with 	
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			it devices/ adapted digital devices. Light intensity could be controlled for learners with visual difficulties.	
<p>Core Competencies to be developed</p> <ul style="list-style-type: none"> ● Critical thinking and problem solving: as the learner identifies Pythagorean relationship in different situations such as a leaning ladder or staircase. ● Creativity and imagination: as the learner creates Pythagorean relationship puzzles. ● Learning to learn: as the learner applies Pythagorean relationship in real life situations. 				
<p>Values</p> <ul style="list-style-type: none"> ● Unity: as the learner carries out various activities together, such as creating Pythagorean relationship puzzles. ● Respect: as the learner appreciates each other's opinions when identifying and applying Pythagorean relationship in real life situations. 				
<p>Pertinent and Contemporary Issues (PCIs)</p> <ul style="list-style-type: none"> ● Peer education: as the learner works with peers to establish the Pythagorean relationship. ● Safety as the learner takes care when using the ladder to do various activities related to Pythagorean relationship. 				
<p>Link to other subjects</p> <p>Pre-Technical Studies: technical drawing, building construction or surveying enhances the concept of Pythagorean relationship.</p>				

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; <ol style="list-style-type: none"> a) convert units of length from one form to another involving cm, dm, m, Dm, Hm in learning situations, b) perform operations involving units of length in different situations, c) work out the perimeter of plane figures in different situations, d) work out the circumference of circles in different situations, e) promote use of length in real life situations. 	The learner is guided to: <ul style="list-style-type: none"> ● Generate conversion tables involving cm, dm, m, Dm, Hm. Learners with manipulation difficulties could use alternative functional part of the body or be assisted by their peers to carry out the activity. ● Carry out different operations involving length. ● Watch videos on correct procedures of measuring length and working out perimeter. Learners with postural defects could be preferentially positioned during this learning experience. Adjust the light intensity for learners with visual difficulties. ● Use appropriate measuring tools to measure the length of various objects. ● Measure and work out in 	<ol style="list-style-type: none"> 1. Why do we use different units of measuring length? 2. How do we measure the perimeter of different objects?

			<p>purposive groups/pairs or as individuals' perimeter of different plane figures including combined shapes. More time could be allowed for learners with manipulation difficulties to perform the task.</p> <ul style="list-style-type: none"> ● Measure the circumference and diameter of different circular objects in purposive groups/pairs and establish the relationship between circumference and diameter which is Pi. Learners with manipulation difficulties could use alternative functional part of the body or be assisted by their peers ● Use Pi to practice working out circumference of circles and can use IT devices for calculations. Learners with manipulation difficulties could use adapted assistive tools as they interact with digital devices. 	
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Core Competencies to be developed:

- Communication and collaboration: as the learner works with peers when measuring lengths of various objects and also as they discuss the relationship between circumference and diameter.
- Self-efficacy: as the learner practices different operations using length.
- Critical thinking and problem solving: as the learner relates circumference to diameter.

Values

- Integrity: as the learner carries out the activities and give the correct measurement.
- Unity: as the learner works together in measuring lengths of various objects.

Pertinent and Contemporary Issues (PCIs)

- Social cohesion: as the learner works with peers in measuring lengths of various objects.
- Safety: as the learner handles different instruments of measuring length.
- Global citizenship: as the learner appreciates units of measurements especially the SI units of length.

Link to other subjects

Integrated Science: as the learner uses units of measuring length as used in Science.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested 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,	The learner is guided to: ● Generate conversion tables in purposive groups/pairs or as individuals involving acres and hectares as units of measuring area. Learners with manipulation difficulties could	1. How do we apply plane figures in real life? 2. How do we work out the areas of plane figures?

		<p>rhombus and trapezium in different situations,</p> <p>c) work out the area of circles in different situations,</p> <p>d) calculate the area of borders and combined shapes in real life situations,</p> <p>e) recognize use of area in real life situations.</p>	<p>use alternative functional part of the body or assistive technology or be assisted by their peers to carry out the activity</p> <ul style="list-style-type: none"> ● Use cut outs to find the area of plane figures ● Watch videos in purposive groups/pairs or as individuals 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 postural defects could be preferentially positioned during this learning experience. Adjust the light intensity for learners who are sensitive to light. ● Cut out a circle into small sectors and rearrange to form a rectangle to derive the formula for the area of a circle in purposive groups/pairs. ● Practice cutting out the plane figures of combined shapes into different shapes to work out the 	
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			area. Learners with manipulation difficulties could use adapted tools or be assisted by their peers to carry out the task. Safety for all learners should be observed.	
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> ● Critical thinking and problem solving: as the learner cuts out the circle into small sectors, joining them to create a rectangle and generate formula of getting the area of a circle. ● Creativity and imaginations: as the learner combines different shapes to make patterns. ● Self-efficacy: as the learner demonstrates how to derive the formula for the area of a circle. 				
<p>Values</p> <ul style="list-style-type: none"> ● Responsibility: as the learner cuts out the small sectors of the circle and joins them up to form a rectangle. ● Integrity: as the learner works out exact areas of different shapes. ● Unity: as the learner works in team and share tasks in measuring the area. 				
<p>PCIs</p> <ul style="list-style-type: none"> ● Safety: as the learner carefully handles different instruments/tools to make cut outs of different materials. ● Environmental education; as the learner use locally available materials in measuring the area of different surfaces. 				
<p>Link to other subjects</p> <ul style="list-style-type: none"> ● Creative Arts & Sports: as the learner combines different shapes to make patterns. ● Integrated science: as the learner relates area to friction and pressure on a surface. 				

Sub Strand: Volume and Capacity

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; <ol style="list-style-type: none"> a) identify metre cube (m^3) as a unit of volume in measurements , b) convert metre cube (m^3) into centimeter cube (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, 	The learner is guided to: <ul style="list-style-type: none"> ● make a cube of sides 1 metre using locally available materials in purposive groups/pairs or as individuals. Learners with manipulation difficulties could use alternative functional part of the body or be assisted by their peers to carry out the activity. ● Discuss in purposive groups/pairs or as individuals and work out the conversions of cm cube (cm^3) to m cube (m^3) and vice versa. Learners with speech difficulties could use alternative communication modes as they carry out the activity. ● Collect labeled containers of different volume and capacity from the environment. Learners 	<ol style="list-style-type: none"> 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.	<p>with manipulation difficulties could use adapted assistive tools as they interact with digital devices</p> <ul style="list-style-type: none"> ● Generate conversion tables of volume and capacity. ● Create models of cubes, cuboids, and cylinders in purposive groups/pairs or as individuals which they will use to work out volume. ● Watch videos in purposive groups/pairs or as individuals on volume and capacity. Learners with postural defects could be preferentially positioned during this learning experience. Adjust the light intensity for learners with visual difficulties. 	
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> ● Critical thinking and problem solving: as the learner creates a conversion table of units of volume. ● Creativity and Imagination: as the learner creates models of cubes and cuboids. 				
<p>Values</p> <ul style="list-style-type: none"> ● Responsibility: as the learner works with peers and share different tasks in making models. ● Peace: as the learner discusses and makes models for different volumes and capacities. 				

Pertinent and Contemporary Issues (PCIs)

- Environmental education: as the learner uses big and small containers of different volume from locally available resources.
- Safety: as the learner carefully makes models of cubes and cuboids.

Link to other subjects

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

Sub Strand: Time, Distance and Speed

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 km/h and m/s in real life situations,	The learner is guided to: <ul style="list-style-type: none">● Use analog or digital clock to tell time in hours, minutes and seconds and discuss the units of time. Learners with speech difficulties could use alternative communication modes as they share their views.● Create conversion table on units of time. Learners with manipulation difficulties could use alternative functional part of the body or use appropriate assistive devices to perform the task	<ol style="list-style-type: none">1. Why do we relate distance, time and speed?2. How do we use speed in daily activities?

		<p>f) convert units of speed from kilometers per hour (Km/h) to meters per second (m/s) and vice versa in real life situations,</p> <p>g) reflect on use of time, distance and speed in real life situations.</p>	<ul style="list-style-type: none"> ● Discuss and estimate distances between two or more points and convert distances in km to meters and vice versa ● Engage in activities that involve distance and time such as track events to relate time, distance and speed learners with mobility difficulties could involve in activities that suit their abilities i.e wheelchair racing, safety precaution should be observed for all learners. ● Discuss in purposive groups/pairs or as individuals how long they take to travel from home to school, discuss the aspects of distance, and time taken to get to school. ● Practice calculating speeds in km/h or m/s. ● Play digital games in purposive groups/pairs involving racing or watch marathon. Learners with manipulation difficulties could use adapted assistive tools as 	
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			they interact with adapted digital devices in the activity.	
Core Competencies to be developed:				
<ul style="list-style-type: none"> ● Critical thinking and problem solving: as the learner creates conversion tables relate and determine distance, time and speed. ● Self-efficacy: as the learner observes punctuality in attending to different activities. 				
Values				
<ul style="list-style-type: none"> ● Patriotism: as the learner observes road safety rules including speed limits for crossing the roads. ● Integrity: as the learner observes punctuality and work out correct distances. 				
Pertinent and Contemporary Issues (PCIs)				
Disaster Risk Reduction (DRR) and Safety: as the learner observes safety in roads and machines in relation to speed.				
Link to other subjects				
Integrated Science: as the learner observes time as they carry out different experiments or activities.				

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 either warm, hot or cold, b) compare temperature using hotter, warmer, colder and same as in different situations,	The learner is guided to: <ul style="list-style-type: none"> ● Move to the field, observe the temperature in the environment and discuss the temperature conditions as either warm, hot or cold. Learners with speech difficulties could use alternative communication modes as they share their views. Ensure barrier free surfaces for learners with 	1. How does temperature affect our everyday lives? 2. How do we measure temperature?

		<p>c) identify units of measuring temperature as degree Celsius and Kelvin in different situations,</p> <p>d) convert units of measuring temperature from degree Celsius to Kelvin and vice-versa,</p> <p>e) work out temperature in degree Celsius and Kelvin in real life situations,</p> <p>f) use IT devices or other resources to read temperature conditions of different places,</p> <p>g) recognise temperature changes in the environment.</p>	<p>mobility difficulties in this activity. Safety precautions could be observed throughout the activity.</p> <ul style="list-style-type: none"> ● Discuss in purposive groups/pairs and test temperature of different substances using arbitrary methods like touching, for example cold, warm or hot, for example water (exercise caution when dealing with hot substances)) learners with speech difficulties could use alternative communication modes as they share their views. ● Identify and use tools of measuring temperature, for example, thermometers that are in degrees celsius. Adapted thermometers with grips could be used for learners with manipulation difficulties. ● Work out conversions of temperature from degrees celsius to kelvin and vice versa. 	
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			<p>More time could be allowed for learners with manipulation difficulties as they work out the task.</p> <ul style="list-style-type: none"> ● Practice using it devices or other resources in purposive groups/pairs to determine temperature of different places in degree celsius and kelvin. Learners with manipulation difficulties could use adapted it tools to perform the task. 	
<p>Core Competencies to be developed</p> <ul style="list-style-type: none"> ● Communication and collaboration: as the learner works with peers and uses tools of measuring temperature. ● Digital literacy: Interacting with technology as the learner determines temperature of different places using digital devices. 				
<p>Values</p> <ul style="list-style-type: none"> ● Responsibility: as the learner handles tools of measuring temperature. ● Integrity: as the learner gives correct measurements of temperature. 				
<p>Pertinent and Contemporary Issues (PCIs)</p> <ul style="list-style-type: none"> ● Self-awareness: as the learner takes their body temperatures that is an indicator of health status. ● Safety: as the learner works together with others and exercises caution when dealing with hot substances. 				
<p>Link to other subjects</p> <ul style="list-style-type: none"> ● Integrated Science: as the learner considers their body temperatures to establish their health status and dress appropriately. ● Social studies: as the learner considers different climatic temperature changes. 				

Sub Strand: Money

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested key inquiry question(s)
3.0 Measurements	3.7 Money (12 lessons)	<p>By the end of the sub strand, the learner should be able to:</p> <ul style="list-style-type: none"> a) work out profit and loss in real life situations, b) calculate the percentage profit and loss in different situations, c) calculate discount and percentage discount of different goods and services, d) calculate commission and percentage commission in real life situations, e) interpret bills at home, f) prepare bills in real life situations, g) work out postal charges in real life situations, h) identify mobile money services for different transactions, 	<p>The learner is guided to:</p> <ul style="list-style-type: none"> ● Role play shopping and selling activities involving profit, loss, discount and commission. Create a conducive environment and adequate space for learners with mobility difficulties as they role play. Ensure safety for all learners. ● Work out profit and loss involving different activities and settings in purposive groups/pairs. Learners with manipulation difficulties could use alternative functional part of the body or assistive digital devices as they perform the task. ● Work out percentage profit/loss from the role play activities. 	<ol style="list-style-type: none"> 1. How do we use money in daily activities? 2. How is mobile money transactions used in real life?

		<p>i) work out mobile money transactions in real life situations,</p> <p>j) use IT devices or other resources to learn more on money transactions,</p> <p>k) recognize use of money in day to day activities.</p>	<ul style="list-style-type: none"> ● Work out discount and percentage discount from model shopping activities in purposive groups/pairs. ● Work out commission and percentage commission from the role play activities. ● Identify different types of bills and read the components of bills. ● Prepare bills of different items and expenses in purposive groups/pairs. ● Visit post office to gather information on postal services and charges. Safety precautions should be observed throughout the activity. Learners with mobility difficulties could be supported to move through various terrains. ● Work out postal charges of different services ● Discuss in purposive groups/pairs and identify 	
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			<p>mobile money services learners with speech difficulties could use alternative and augmentative modes of communication during discussion.</p> <ul style="list-style-type: none"> ● Work out mobile money transactions, for example, in sending or receiving money, credit and savings ● Generate bills, pay for goods and services, and other online transactions using it devices in purposive groups/pairs. Regulate screen resolution for learners with visual difficulties. 	
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> ● Critical thinking and problem solving: as the learner works out discounts, commissions and mobile money as well as postal charges and bills. ● Communication and collaboration: as the learner role plays on negotiating for discounts and commissions. ● Citizenship: as the learner works out discounts, commissions and mobile money in Kenyan currency. ● Self-efficacy: as the learner role plays on negotiating for discounts and commissions. 				
<p>Values</p> <ul style="list-style-type: none"> ● Patriotism: as the learner role plays and works out paying bills in Kenyan currency. ● Integrity: as the learner pays bills and appreciates use of money. 				

Pertinent and Contemporary Issues (PCIs)

- Financial literacy: as the learner works out any discounts, commissions and mobile money as well as postal charges and bills.
- Decision making: as the learner uses money in paying bills and postal charges.

Link to other subjects

- Pre-Technical Studies: as the learner works out bills, discounts, commissions and postal charges.
- Languages: as the learner gathers information on postal services and charges.

Suggested Assessment Rubric

Level Indicator	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to identify and apply Pythagorean relationship	The learner identifies and applies Pythagorean relationship correctly and proficiently	The learner identifies and applies Pythagorean relationship correctly	The learner identifies or applies Pythagorean relationship correctly	The learner identifies Pythagorean relationship partially correctly
Ability to convert units of length and perform operations involving length	The learner converts units of length and perform operations involving length accurately and systematically	Converts units of length and perform operations involving length accurately	Converts units of length or perform operations involving length accurately	Converts units of length accurately
Ability to work out the perimeter of plane figures, circumference of circles and area	The learner works out the perimeter of plane figures, circumference of circles and area of rectangles,	The learner works out the perimeter of plane figures, circumference of circles and area of rectangles,	The learner works out the perimeter of plane figures or circumference of circles and area of any 3 of rectangles, parallelogram,	The learner works out the perimeter of plane figures or circumference of circles and area of any 2 of rectangles,

of rectangles, parallelogram, rhombus, trapezium and circles	parallelogram, rhombus, trapezium and circles accurately and systematically	parallelogram, rhombus, trapezium and circles accurately	rhombus, trapezium or circles accurately	parallelogram, rhombus, trapezium or circles accurately
Ability to work out the volume of cubes, cuboids and cylinders	The learner works out the volume of cubes, cuboids and cylinders accurately and systematically	The learner works out the volume of cubes, cuboids and cylinders accurately	The learner works out the volume of any 2 of; cubes, cuboids or cylinders accurately	The learner works out the volume of any 1 of; cubes or cuboids accurately
Ability to identify the relationship between cm^3 , m^3 and litres, relate volume to capacity and work out the capacity of containers	The learner identifies the relationship between cm^3 , m^3 and litres, relates volume to capacity and works out the capacity of containers accurately and proficiently	The learner identifies the relationship between cm^3 , m^3 and litres, relates volume to capacity and works out the capacity of containers accurately	The learner identifies the relationship between cm^3 , m^3 or litres, or relates volume to capacity or works out the capacity of containers accurately	The learner identifies the relationship in any 2 of; cm^3 , m^3 or litres accurately
Ability to work out speed in km/h and m/s	The learner works out speed in Km/h and m/s accurately and systematically	The learner works out speed in Km/h and m/s accurately	The learner works out speed in Km/h or m/s accurately	The learner works out speed in Km/h partially accurately
Ability to identify and	The learner identifies and converts units of	The learner identifies and converts units of	The learner identifies or converts units of measuring	The learner identifies units of measuring

convert units of measuring temperature from degree Celsius to Kelvin and vice-versa	measuring temperature from degree Celsius to Kelvin and vice-versa accurately and systematically	measuring temperature from degree Celsius to Kelvin and vice-versa accurately	temperature from degree Celsius to Kelvin or vice-versa accurately	temperature as degree Celsius and Kelvin accurately
Ability to work out temperature in degrees Celsius and Kelvin	The learner works out temperature in degree Celsius and Kelvin accurately and Proficiently	The learner works out temperature in degree Celsius and Kelvin accurately	The learner works out temperature in degree Celsius or Kelvin accurately	The learner works out temperature in degree Celsius partially accurately
Ability to work out profit, loss, discount and commission	The learner works out profit, loss, discount and commission correctly and proficiently	The learner works out profit, loss, discount and commission correctly	The learner works out any 3 of; profit, loss, discount or commission correctly	The learner works out any 2 of; profit, loss, discount or commission correctly
Ability to calculate percentage profit, loss, discount and commission	The learner calculates percentage profit, loss, discount and commission accurately and systematically	The learner calculates percentage profit, loss, discount and commission accurately	The learner calculates any 3 of; percentage profit, loss, discount or commission accurately	The learner calculates any 2 of; percentage profit, loss discount or commission accurately
Ability to interpret and prepare bills	The learner interprets and prepare bills correctly and logically	The learner interprets and prepare bills correctly	The learner interprets or prepare bills correctly	The learner interprets bills partially correctly

Ability to identify and work out postal charges and mobile money services	The learner identifies and works out postal charges and mobile money services accurately and systematically	The learner identifies and works out postal charges and mobile money services accurately	The learner identifies or works out postal charges or mobile money services accurately	The learner identifies or works out postal charges or mobile money services partially accurately
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STRAND 4.0: GEOMETRY**Sub Strand: Angles**

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,	The learner is guided to: <ul style="list-style-type: none">● Discuss in purposive groups/pairs positions of objects in the immediate environment in relation to angles. Those with speech difficulties could use alternative modes of communication as they share their views.● Draw/mount/trace/stamp straight lines with different angles, measure and relate them. Learners with manipulation difficulties could use alternative functional part of the body or assistive devices or be assisted by their peers to carry out this activity● Draw trace/stamp/mount in purposive groups/pairs different angles at a point,	1. How do we use angles in real life situations?

		<p>g) solve angles and sides of polygons up to hexagon in learning situations,</p> <p>h) reflect on use of angles in objects within the environment.</p>	<p>measure, relate and work out angles at a point . Already drawn different angles for interpretation could be allowed for learners with manipulation difficulties</p> <ul style="list-style-type: none"> ● Draw trace/stamp/mount transversals, measure and relate angles in a transversal ● Draw parallelograms, measure and relate various angles in a parallelogram ● Use cut outs or drawings of different polygons up to hexagon, measure the interior angles and relate to the number of right angles learners with manipulation difficulties could use adapted assistive devices to draw/trace and measure interior and exterior angles of hexagons . ● Use cut outs or drawings of different polygons up to hexagon, measure interior and exterior angles and relate to 	
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			<p>the number of sides. Learners with speech difficulties could use alternative modes of communication as they relate interior and exterior angles with the number of sides.</p> <ul style="list-style-type: none">● Work out angles and sides in different polygons up to hexagon. More time could be given to learners with manipulation difficulties as they perform the task.● Draw angles at a point and in parallelograms using it devices or other resources. In purposive groups/pairs or as individuals. Learners with manipulation difficulties could use adapted digital devices to draw angles at a point. Regulate screen resolution for learners who are sensitive to light	
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<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> • Communication and collaboration: as the learner discusses the positions of objects in the immediate environment in relation to angles. • Critical thinking and problem solving: as the learner draws, measures and relates angles.
<p>Values</p> <ul style="list-style-type: none"> • Responsibility: as the learner explores positions of objects in the immediate environment in relation to angles. • Unity: as the learner works with peers to use cut outs or drawings of different polygons up to hexagon.
<p>Pertinent and Contemporary Issues (PCIs)</p> <p>Safety: as the learner works carefully use cut outs or drawings of different polygons up to hexagon. .</p>
<p>Link to other subjects</p> <p>Pre –Technical Studies: as the learner uses cut outs or drawings of different polygons up to hexagon, or drawings.</p>

Sub Strand: Geometrical Constructions

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
4.0 Geometry	4.2 Geometrical Constructions (12 lessons)	By the end of the sub strand, the learner should be able to; <ul style="list-style-type: none"> a) measure different angles in learning situations, b) bisect angles using a ruler and a pair of compasses only in learning situations, c) construct 90°, 45°, 60°, 30° and other angles that are multiples 	The learner is guided to: <ul style="list-style-type: none"> • Draw trace/ mount and measure different angles. Learners with manipulation difficulties could use alternative functional part of the body or assistive/adapted devices or be assisted by their peers to carry out this activity. 	<ol style="list-style-type: none"> 1. How do we use geometric constructions in real life situations? 2. Why do we use geometric constructions?

		<p>of 7.5° using a ruler and a pair of compasses only in learning situations,</p> <p>d) construct different triangles using a ruler and a pair of compasses only in different situations,</p> <p>e) construct circles using a ruler and a pair of compasses only in different situations,</p> <p>f) recognize use of geometric constructions of different shapes in objects.</p>	<p>Note. Accuracy and smoothness could be varied for learners with manipulation difficulties</p> <ul style="list-style-type: none"> ● Draw trace/mount /stamp and bisect different angles in purposive groups/pairs. Learners with manipulation difficulties could be use assistive devices to draw and bisect angles or be assisted by the peers. More time could be given to enable them finish their work. ● Construct 90°, 45°, 60°, 30° including 120°, 105° and practice drawing angles that are multiples of 7.5° using a pair of compasses and rulers in purposive groups/pairs. Learners with manipulation difficulties could use alternative functional part/ adapted devices to construct or be given already drawn angles to interpret. Safety of all 	
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			<p>learners should be observed as they use compasses during construction.</p> <ul style="list-style-type: none"> ● Construct triangles using a pair of compasses and rulers. More time could be given to learners with manipulation difficulties. ● Construct circles using a pair of compasses and rulers. ● Use it devices on graphics to draw angles and circles. Watch videos of bisecting angles and constructing angles and circles. Regulate screen resolution for learners with visual difficulties. Learners with postural defects could be preferentially positioned during this learning experience. 	
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> ● Creativity and imagination: as the learner constructs angles, triangles and circles. ● Digital literacy: as the learner uses IT tools to learn more on construction of angles, triangles and circles 				
<p>Values</p> <ul style="list-style-type: none"> ● Responsibility: as the learner uses geometrical instruments for construction of angles and circles. ● Unity: as the learner works together with others to draw and measure different angles. 				

Pertinent and Contemporary Issues (PCIs)

Safety: as the learner uses geometrical instruments such as a pair of compasses and dividers.

Link to other subjects

Creative Arts and Sports: as the learner constructs angles, triangles and circles which can be used to make geometrical patterns.

Suggested Assessment Rubric

Level Indicator	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to relate and solve angles on a straight line, at a point and on a transversal	The learner relates and solves angles on a straight line, at a point and on a transversal accurately and systematically	The learner relates and solves angles on a straight line, at a point and on a transversal accurately	The learner relates or solves angles on a straight line, at a point or on a transversal accurately	The learner relates angles on a straight line, at a point or on a transversal accurately
Ability to identify angle properties of polygons up to hexagon	The learner identifies angle properties of polygons up to hexagon accurately and gives explanations	The learner identifies angle properties of polygons up to hexagon accurately	The learner identifies angle properties of polygons up to pentagon accurately	The learner identifies angle properties of quadrilaterals accurately
Ability to solve angles and sides of polygons up to hexagon	The learner solves angles and sides of polygons up to hexagon accurately and systematically	The learner solves angles and sides of polygons up to hexagon accurately	The learner solves angles or sides of polygons up to pentagon accurately	The learner solves angles or sides of quadrilaterals accurately
Ability to measure, bisect and construct	The learner measures, bisects and constructs	The learner measures, bisects and constructs	The learner measures, bisects or constructs 90° ,	The learner measures, bisects or constructs 90° ,

90 ⁰ , 60 ⁰ , 45 ⁰ 30 ⁰ and other angles that are multiples of 7.5 ⁰ using a ruler and a pair of compasses only	90 ⁰ , 60 ⁰ , 45 ⁰ , 30 ⁰ and other angles that are multiples of 7.5 ⁰ using a ruler and a pair of compasses accurately and systematically	90 ⁰ , 60 ⁰ , 45 ⁰ , 30 ⁰ and other angles that are multiples of 7.5 ⁰ using a ruler and a pair of compasses accurately	60 ⁰ , 45 ⁰ , 30 ⁰ using a ruler and a pair of compasses accurately	60 ⁰ , 45 ⁰ using a ruler and a pair of compasses accurately
Ability to construct different triangles and circles using a ruler and a pair of compasses only	The learner constructs different triangles and circles using a ruler and a pair of compasses accurately and systematically	The learner constructs different triangles and circles using a ruler and a pair of compasses accurately	The learner constructs different triangles or circles using a ruler and a pair of compasses accurately	The learner constructs different triangles or circles using a ruler and a pair of compasses partially accurately

STRAND 5.0: DATA HANDLING AND PROBABILITY

Sub strand: Data handling

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; 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 suitable scale for graphs of data from different situations, e) draw pictographs of data from real life situations, f) draw bar graphs of data from different sources, g) interpret bar graphs of data from real life situations, h) draw pie charts of data from real life situations,	The learner is guided to: <ul style="list-style-type: none"> ● Discuss, collect and organize data from immediate environment. Learners with speech difficulties could use alternative modes of communication during discussion. Learners with manipulation difficulties could use alternative functional part of the body or assistive/adapted devices or be assisted by their peers to carry out the activity. ● Tally and represent the data in frequency tables. Learners with manipulation difficulties could use adapted devices to present data in frequency table. ● Discuss and come up with suitable scale to represent data in graphs. More time could be 	<ol style="list-style-type: none"> 1. Why do we collect data? 2. How do we represent data? 3. How do we interpret data?

		<p>i) interpret pie charts of data from real life situations, j) draw a line graph of data from different situations, k) interpret travel graphs from real life situations, l) promote use of data in real life situations.</p>	<p>given to learners with speech difficulties to express their views</p> <ul style="list-style-type: none"> ● Discuss and use a suitable scale to draw trace/stamp/mount pictographs from data. Learners with manipulation difficulties could use assistive technologies to draw ● Discuss and use a suitable scale to draw bar graphs from data ● Discuss in purposive groups/pairs and interpret bar graphs of data. Learners with speech difficulties could use alternative communication modes as they discuss and interpret data. ● Discuss and represent data on pie charts ● Discuss and interpret pie charts of data. ● Use suitable scale to represent and interpret data from a line graphs. ● Discuss and interpret travel 	
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			<p>graphs from real life situations.</p> <ul style="list-style-type: none"> ● Draw trace/stamp/mount pie charts, pictographs and read data in purposive groups/pairs from bar graphs using it devices or watch videos relating to data. Learners with manipulation difficulties could use adapted digital devices to perform the task. Regulate screen resolution for learners with visual difficulties. Learners with postural defects could be preferentially positioned during this learning experience. 	
<p>Core Competencies to be developed:</p> <ul style="list-style-type: none"> ● Creativity and imagination: as the learner represents data in the form of pie charts and pictograms. ● Critical thinking and problem solving: as the learner interprets data from bar graphs, pictograms and pie charts. 				
<p>Values</p> <ul style="list-style-type: none"> ● Responsibility: as the learner collects and presents data in pictograms that may involve different resources. ● Peace: as the learner works with peers to collect and represent data in graphs. 				
<p>Pertinent and Contemporary Issues (PCIs) Decision making: as the learner presents data that can be used to make informed decisions.</p>				
<p>Link to other subjects</p> <ul style="list-style-type: none"> ● Creative Arts and Sports: as the learner draws pictographs and pie charts. ● Social studies: as the learner presents data in pie charts and pictographs that may involve populations. 				

Suggested Assessment Rubric				
Level Indicator	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to collect data and draw frequency distribution table of data	The learner collects data and draws frequency distribution table of data accurately and systematically	The learner collects data and draws frequency distribution table of data accurately	The learner collects data or draws frequency distribution table of data accurately	The learner collects data or draws frequency distribution table of data partially accurately
Ability to determine suitable scale for graphs and draw Pictographs and Bar Graphs of data	The learner determines suitable scale for graphs and draws Pictographs and Bar Graphs of data accurately and systematically	The learner determines suitable scale for graphs and draws Pictographs and Bar Graphs of data accurately	The learner determines suitable scale for graphs or draws Pictographs or Bar Graphs of data accurately	The learner determines suitable scale for graphs or draws Pictographs of data accurately
Ability to interpret data from pictographs and Bar Graphs	The learner interprets data from pictographs Bar Graphs concisely	The learner interprets data from pictographs and Bar Graphs correctly	The learner interprets data from pictographs or Bar Graphs correctly	The learner interprets data from pictographs correctly
Ability to draw and interpret Pie Charts of data.	The learner draws and Interprets Pie Charts of data precisely	The learner draws and Interprets Pie Charts of data accurately	The learner draws or Interprets Pie Charts of data accurately	The learner draws Pie Charts of data partially accurately
Ability to draw line graphs and interpret travel graphs	The learner draws line graph and Interprets travel graphs accurately and systematically	The learner draws line graph and Interprets travel graphs accurately	The learner draws line graph or Interprets travel graphs accurately	The learner draws line graph or Interprets travel graphs partially accurately

APPENDIX 1: GUIDELINES FOR INTEGRATING 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. Learners with speech difficulties could use Alternative and Augmentative modes of Communication-AAC (residual speech/ digital devices with text-to-speech application/ point/sign/write) during the discussion.
Milestone 3	Planning for the Project Learners share roles, create a list of activities to be undertaken, mobilize resources needed to create their intervention and set timelines for execution. Learners with manipulation difficulties could use alternative functional parts of the body, appropriate assistive devices or be assisted by peers or teacher to perform the task.

Milestone 4	<p>Implementation</p> <p>The learners execute the project and keep evidence of work done.</p>
Milestone 5	<p>Showcasing /Exhibition and Report Writing</p> <p>Exhibitions involve showcasing learners’ project items to the community and reflecting on the feedback</p> <p>Learners write a report detailing their project activities and learnings from feedback. Learners with manipulation difficulties could be provided with adapted writing materials such as pen/pencils with grip. They could also type on an adapted digital device or be assisted by a scribe or learner support assistant to write the report. Those with postural deformities could require appropriate positioning while writing the report.</p>
Milestone 6	<p>Reflection</p> <p>Learners review all project work to learn from the challenges faced.</p> <p>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.</p>

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.

APPENDIX 2: LIST OF ASSESSMENT METHODS, LEARNING RESOURCES AND NON-FORMAL ACTIVITIES

Strand	Sub strand	Suggested Assessment Methods	Resources Suggested Learning	Suggested Non-Formal Activities
Numbers	Whole Numbers	Class activities Class written tests Out of school/home assignments or activities	Place value apparatus, Number charts, Number cards, Multiplication table, adapted writing materials, universal cuffs, splints	Prepare or improvise number charts and different Place value apparatus.
	Factors	Class activities Class written tests Out of school/home assignments	Multiplication tables, adapted writing materials, universal cuffs, splints	
	Fractions	Class activities Class written tests Out of school/home assignments	Multiplication tables, adapted writing materials, universal cuffs, splints	
	Decimals	Class activities Class written tests Out of school/home assignments	Equivalent fraction board, Circular and Rectangular cut outs, Counters, adapted writing materials, universal cuffs, splints	
	Squares and square roots	Class written tests Class activities	Place value charts, Number cards, adapted writing materials, universal cuffs, splints	

Algebra	Algebraic Expressions	Class activities Class written tests Out of school/home assignments or activities	Information from different sources, adapted writing materials, universal cuffs, splints	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 Out of school/home assignments or activities	Information from different sources	
	Inequalities	Class written tests Class activities	Information from different sources	
Measurement	Pythagorean Relationship	Class activities Class written tests Out of school/home assignments	ladder, stairs, Square cut outs, 1cm squares, 1m squares, adapted writing materials, universal cuffs, splints,	

	Length	Class written tests Class activities	Metre Rule, 1metre ticks, Tape measure, adapted writing materials, universal cuffs, splints	
	Area	Class written tests Out of school/home assignments or activities	Square cut outs, 1cm squares, 1m squares	
	Volume and Capacity	Class written tests Class activities Out of school/home assignments or activities	Cubes, Cuboids, Cylinders, Pyramids, Spheres, Cut outs of Rectangles, Circles, and Triangles of different Sizes, adapted writing materials, universal cuffs, splints	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 Class activities	Tea spoons, Soil or Sand, Manual/Electronic weighing machine, Beam balance, adapted writing materials, universal cuffs, splints	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 Out of school/home assignments or activities	Analogue and Digital clocks, Digital watches, Stop watches, adapted writing materials, universal cuffs, splints	
	Temperature	Class activities Out of school/home assignments or activities	Thermometer, weather charts, adapted writing materials, universal cuffs, splints	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 Class activities Out of school/home assignments or activities	Price List, Classroom shop, Electronic money tariffs charts, adapted writing materials, universal cuffs, splints	
Geometry	Angles	Class activities Class written tests Out of school/home assignments or activities	Unit angles, Protractors, Rulers, Straight edges, adapted writing materials, universal cuffs, splints	
	Geometric constructions	Class activities Class written tests	Pair of compasses, rulers, adapted writing materials, universal cuffs, splints	
Data handling and probability	Data handling	Class activities Class written tests	Data from different sources, adapted writing materials, universal cuffs, splints	Undertake project that may involve data collection and presentation

NOTE: Assessment methods may be modified to accommodate a learner’s diverse needs so that he/she can participate and achieve the learning outcomes. The table below shows how modes of assessment may be adapted:

S/No	Assessment Methods/Modes And Suggested Adaptations	
	Methods	Suggested Adaptations
1.	Written assessment	<ul style="list-style-type: none"> • Typing, stamping or signing • Description of the task as a scribe or learner support assistant writes Audio visual recording of the learner as he/she makes oral responses • Provision of Adapted digital devices and writing/drawing resources • Adjustment of time according to individual needs • Providing illustrations to be interpreted for activities that involve drawing • Use of worksheets
2.	Oral or Aural assessment	<ul style="list-style-type: none"> • Written responses • Use of AAC (<i>Augmentative and Alternative modes of Communication</i>) e.g. <i>talking books, gestures, body movement, sign language, alphabet cards, facial expressions</i> • Adjustment of time according to individual needs

3.	Portfolio	<ul style="list-style-type: none"> • Use of E-Portfolio • Provision of physical support • Use of assistive technology • Provision of Adapted digital devices and writing/drawing resources • Adjustment of time according to individual needs • Description of how to carry out a practical activity while being audio/video recorded
4.	Practical assessment/ Experiments	<ul style="list-style-type: none"> • Provision of physical support • Provision of Adapted resources (learner specific) • Description of how to carry out a practical activity while being audio/video recorded • Adjustment of time according to individual needs • Rest intervals according to individual needs • Environmental adaptation
5.	Project	<ul style="list-style-type: none"> • Provision of physical support • Provision of Adapted resources (learner specific) • Description of how to carry out a practical activity while being audio/video recorded • Adjustment of time according to individual needs • Environmental adaptation

APPENDIX 3: USE OF ICT DEVICES

The following ICT devices may be used in the teaching/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 CD's,
11. Scanners,
12. Internet and Others,
13. Adapted digital devices.