REPUBLIC OF KENYA
MINISTRY OF EDUCATION

PRIMARY SCHOOL CURRICULUM DESIGN

MATHEMATICS

GRADE 5

FOR LEARNERS WITH PHYSICAL IMPAIRMENT

KENYA INSTITUTE OF CURRICULUM DEVELOPMENT
A Skilled and Ethical Society

First Published 2017

Revised 2024

ISBN:978-9914-724-48-6

Published and printed by Kenya Institute of Curriculum Development

FOREWORD

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

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

The reviewed Grade five curriculum designs for learners with Physical Impairment build on competencies attained by learners at Grade four. Emphasis at this grade is the development of basic literacy, numeracy and skills for interaction with the environment.

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

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

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

PREFACE

The Ministry of Education (MoE) nationally implemented Competency Based Curriculum (CBC) in 2019. Grade one is the first grade of Primary education level while Grade 6 is the final grade of the level in the reformed education structure.

The reviewed Grade five curriculum furthers implementation of the CBC from Grade four in Primary 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 five curriculum designs for learner 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 five and prepare them for smooth transition to Grade six. 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 (*SNE adapt*) 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 four 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 five 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 five and preparation of learners with physical impairment for transition to Grade six.

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NATIONAL GOALS OF EDUCATION

1. **Foster nationalism, patriotism, and promote national unity**
   Kenya's people belong to different communities, races and religions and should be able to live and interact as one people. Education should enable the learner acquire a sense of nationhood and patriotism. It should also promote peace and mutual respect for harmonious co-existence.

2. **Promote social, economic, technological and industrial needs for national development**
   Education should prepare the learner to play an effective and productive role in the nation.

   a) **Social Needs**
      Education should instill social and adaptive skills in the learner for effective participation in community and national development.

   b) **Economic Needs**
      Education should prepare a learner with requisite competences that support a modern and independent growing economy. This should translate into high standards of living for every individual.

   c) **Technological and Industrial Needs**
      Education should provide the learner with necessary competences for technological and industrial development in tandem with changing global trends.

3. Promote individual development and self-fulfillment

Education should provide opportunities for the learner to develop to the fullest potential. This includes development of one's interests, talents and character for positive contribution to the society

.4 Promote sound moral and religious values

Education should promote acquisition of national values as enshrined in the Constitution. It should be geared towards developing a self-disciplined and ethical citizen with sound moral and religious values.

5. Promote social equity and responsibility

Education should promote social equity and responsibility. It should provide inclusive and equitable access to quality and differentiated education; including learners with special educational needs and disabilities. Education should also provide the learner with opportunities for shared responsibility and accountability through service learning.

6. Promote respect for and development of Kenya's rich and varied cultures

Education should instill in the learner appreciation of Kenya's rich and diverse cultural heritage. The learner should value own and respect other people's culture as well as embrace positive cultural practices in a dynamic society.

7. Promote international consciousness and foster positive attitudes towards other nations

Kenya is part of the interdependent network of diverse peoples and nations. Education should therefore enable the learner to respect, appreciate and participate in the opportunities within the international community. Education should also facilitate the learner to operate within the international community with full knowledge of the obligations, responsibilities, rights and benefits that this membership entails.

8. Good health and environmental protection

Education should inculcate in the learner the value of physical and psychological well-being for self and others. It should promote environmental preservation and conservation, including animal welfare for sustainable development.

LESSON ALLOCATION AT UPPER PRIMARY

S/No	Learning Area	Number of Lessons
1.	English	5
2.	Kiswahili / Kenya Sign Language	4
3.	Mathematics	5
4.	Religious Education	3
5.	Science & Technology	4
6.	Agriculture and Nutrition	4
7.	Social Studies	3
8.	Creative Arts	6
	Pastoral/Religious Instruction Programme	1
Total		**35**

GENERAL LEARNING OUTCOMES FOR PRIMARY EDUCATION

By the end of the Primary Education, the learner should be able to:

a) Communicate appropriately using verbal and or non-verbal modes in a variety of contexts.
b) Apply acquired knowledge, skills, values and attitudes in everyday life
c) Demonstrate social skills, moral and religious values for positive contribution to society.
d) Exploit one's talents for individual development and self-fulfilment
e) Explore, manipulate, manage and conserve the environment for learning and sustainable development.
f) Use digital literacy skills for learning and enjoyment.
g) Value Kenya's rich and diverse cultural heritage for harmonious living.
h) Appreciate the need for, and importance of interdependence of people and nations

ESSENCE STATEMENT

Mathematics is a learning area that involves computation in numbers and arithmetic, shapes, spatial relations and information processing in the form of data. It is a vehicle of development and improvement of a country's economic development. By learning mathematics, learners develop a understanding of numbers, logical thinking skills and problem solving skills. Mathematics is applied in business, social and political worlds. At this level mathematics will build on the competencies acquired by the learner in the early years of education. Learning mathematics will also enhance the learner' competencies in numeracy as a foundation of STEM at the higher levels of Education cycle. Mathematics is also a subject of enjoyment and excitement as it gives learners opportunities for creative work and fun.

SUBJECT GENERAL LEARNING OUTCOMES

By the end of Primary Education, the learner should be able to:

1) Demonstrate mastery of number concepts by working out problems in day-to-day life.
2) Apply measurement skills to find solutions to problems in a variety of contexts.
3) Apply properties of geometrical shapes and spatial relationships in real life experiences.
4) Apply data handling skills to solve problems in day-to-day life.
5) Analyze information using algebraic expressions in real life situations.
6) Apply mathematical ideas and concepts to other learning areas or subjects and in real life contexts.
7) Develop confidence and interest in mathematics for further learning and enjoyment.
8) Develop values and competencies for a cohesive harmonious living in the society.
9) Manage pertinent and contemporary issues for enhanced inter-personal relationships.

SUMMARY OF STRANDS AND SUB STRANDS

S/ No	STRAND	SUB STRAND	Suggested Number of Lessons
1	1.0 Numbers	1.1 Whole Numbers	20
		1.2 Addition	6
		1.3 Subtraction	6
		1.4 Multiplication	6
		1.5 Division	6
		1.6 Fractions	8
		1.7 Decimals	6
		1.8 Simple Equations	6
2	2.0 Measurement	2.1 Length	12
		2.2 Area	6
		2.3 Volume	6
		2.4 Capacity	12
		2.5 Mass	12
		2.6 Time	8
		2.7 Money	8
3	3.0: Geometry	3.1 Lines	4
		3.2 Angles	6
		3.3 Three Dimension (3-D) Objects	6
4	4.0 Data Handling	4.1 Data Representation	6
	Total number of lessons		**150**
Note: The suggested number of lessons per sub strand may be less or more depending on the context.			

STRAND 1.0: NUMBERS

Strand	Sub strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Numbers	**1.1 Whole Numbers** (20 Lessons)	By the end of the sub strand, the learner should be able to; a) use place value and total value of digits up to hundreds of thousands in different situations, b) read and write numbers up to tens of thousands in words in different situations, c) order numbers up to tens of thousands in different situations, d) round off numbers up to tens of thousands to the nearest hundred and thousand in different situations, e) apply divisibility tests of 2, 5 and 10 in real life situations,	The learner is guided to: • Identify in purposive groups/pairs place value of digits up to hundreds of thousands using place value apparatus or place value charts. Learners with speech difficulties could use alternative and augmentative modes of communication to perform the task. • Identify total value of digits up to hundreds of thousands using place value charts. Learners with manipulation difficulties could use adapted writing materials or type on adapted digital devices. • Read numbers up to hundreds of thousands in symbols from number charts or cards. More time could be allowed for learners with speech difficulties to express their views.	1. How is ordering of numbers used in real life? 2. Why do we round off numbers?

		f) determine Highest Common Factor (HCF) and Greatest Common Divisor (GCD) in different situations, g) determine Least Common Multiple (LCM) in real life situations, h) appreciate use of whole numbers in real life situations.	• Read and write numbers up to tens of thousands in words from number charts or cards in purposive groups/pairs. • Arrange numbers up to tens of thousands in increasing and decreasing order. More time could be allowed for learners with manipulation difficulties to complete the task. • Discuss in purposive groups/pairs and round off numbers up to tens of thousands to the nearest hundred and thousand using number cards and share with other groups. More time could be allowed for learners with speech difficulties to express their views. • Carry out in purposive groups/pairs the divisibility test for 2, 5 and 10 and come up with divisibility rules. • Express numbers in terms of their factors then identify the common factors.	

			• Express the multiples of numbers and identify multiples of the common multiples as well as the least common multiples. • Play games in purposive groups/pairs involving numbers using digital/adapted digital devices or other resources. Screen resolution or light intensity could be regulated for learners who are sensitive to light.	
Core Competences to be developed: ● Critical thinking and problem solving: as learner orders and rounds off numbers. ● Learning to learn: as learner reads and writes numbers computing the total values of numbers.				
Values: Unity: as learner works with peers in identifying factors, divisors and multiples of numbers to enhance unity.				
Pertinent and Contemporary Issues (PCIs): Safety: as learner observes safety precautions while handling apparatus for carrying out operations on numbers.				
Link to other subjects: The learner is able to relate whole numbers to reading and writing numbers symbols and words in languages				

Strand	Sub strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Numbers	**1.2 Addition** (6 Lessons)	By the end of the sub strand, the learner should be able to; a) add up to three 6 - digit numbers without regrouping up to a sum not exceeding 1000 000 in different situations, b) add up to two 6-digit numbers with double regrouping with the sum not exceeding 1000 000 in different situations, c) estimate sum by rounding off the addends to the nearest hundred and thousand in different situations, d) create patterns involving the addition of numbers up to a sum of 1,000 000 in real life situations,	The learner is guided to: • Work out in purposive pairs/groups the sum of three 6 - digit numbers without regrouping up to 1,000 000 using place charts or any other resource. Learners with manipulation difficulties could use alternative functional parts of the body or appropriate assistive technology to work out the sums. • Collaborates with others to work out the sum of two 6 - digit numbers with double regrouping with the number not more than 1,000 000 using place value apparatus or any other resource. Learners with speech difficulties could use alternative and augmentative modes of communication (AAC) as they collaborate. • Estimate sums by rounding off	1. How do you estimate the sum of given numbers? 2. How do you create patterns in addition?

		e) appreciate use of the addition of whole numbers in real life situations.	the addends to the nearest hundred and thousand. ● Come up with patterns involving addition of numbers up to a sum of 1,000 000. More time could be allowed for learners with manipulation difficulties to complete the patterns. ● Play games in purposive groups/pairs involving addition of numbers using digital/adapted digital devices and other resources. Regulate screen resolution or light intensity appropriately.	
Core Competences to be developed: ● Creativity and imagination: as learner makes number patterns involving addition. ● Digital literacy: as learner uses digital devices and other resources to learn and play games in addition concept development.				
Values: Unity: as the learner collaborates with others to work out the sum of two 6 - digit numbers. Responsibility: Learner enhances responsibility by taking their roles individually to achieve common solutions in addition of numbers.				

Pertinent and Contemporary Issues (PCIs) Social cohesion: as the leaner works with peers in using digital resources for learning the addition of numbers.
Link to other subjects The learner is able to relate the concept of addition to value addition in Agriculture and nutrition.

Strand	**Sub strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Suggested Key Inquiry Question(s)**
1.0 Numbers	**1.3 Subtraction** (6 Lessons)	By the end of the sub strand, the learner should be able to; a) subtract up to two 6-digit numbers without regrouping in real life situations, b) subtract of up to two 6-digit numbers with regrouping in different situations, c) estimate difference by rounding off the minuend and subtrahend to the nearest hundred and thousand in different	The learner is guided to: ● Work in purposive groups/pairs to subtract up to two 6-digit numbers without regrouping using place value apparatus. Learners with manipulation difficulties could use alternative functional parts of the body or appropriate assistive technology to work out subtraction. ● Discuss in purposive groups/pairs and work out subtraction of up to two 6-digit numbers with regrouping using place value apparatus. Learners with speech difficulties could use	1. How do you estimate difference to the nearest hundred? 2. How can you create number patterns involving subtraction?

		situations, d) perform combined operations involving addition and subtraction in different situations, e) create patterns involving subtraction from up to 1,000 000 in different situations, f) appreciate subtraction of numbers in real life situations.	alternative and augmentative modes of communication (AAC) to discuss. ● Team up with peers to estimate difference by rounding off the minuend and subtrahend to the nearest hundred and thousand using a number line. ● Work out questions involving addition and subtraction in purposive pairs/groups. ● Generate patterns involving subtraction of whole numbers from up to 1,000 000. Learners with manipulation difficulties could generate patterns using alternative part of the body or adapted digital devices. ● Play games involving subtraction of numbers using digital/adapted digital devices and other resources. Regulate screen resolution or light intensity appropriately.	

Core Competences to be developed: ● Creativity and imagination: as the learner creates number patterns involving subtraction. ● Self-efficacy: as the learner reports the group's discussion to others in carrying out the various subtraction skills.
Values: Unity: as the learner harmoniously works with peers to subtract of up to 6-digit numbers without regrouping using place value apparatus.
Pertinent and Contemporary Issues (PCIs): Social cohesion: as the learner as carries out the group work in estimation of differences.
Link to other subjects The learner is able to relate the concept of subtraction to the decrease of economic resources in Social Studies.

Strand	**Sub strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Suggested Key Inquiry Question(s)**
1.0 Numbers	**1.4 Multiplication** (6 Lessons)	By the end of the sub strand, the learner should be able to; a) multiply up to a 3 - digit number by up to a 2 - digit number in real life situations, b) estimate product by rounding off numbers to the nearest ten in different situations,	The learner is guided to: ● Work out in purposive groups/pairs multiplication of up to a 3 - digit number by up to a 2 - digit number using different methods. Learners with manipulation difficulties could use alternative functional parts of the body or appropriate assistive technology to work out	1. How is Multiplication used in real life? 2. How can you form patterns involving multiplication?

		c) make patterns involving multiplication of numbers with product not exceeding 1000 in in different situations, d) appreciate use of multiplication in real life.	multiplication. ● Round off numbers to the nearest tens then get their product using compatibility of numbers or own strategies. More time could be allowed for learners with manipulation difficulties to complete the task. ● Team up with peers to create patterns involving multiplication of numbers with products not exceeding 1000. Learners with speech difficulties could use alternative and augmentative modes of communication (AAC) as they work in a team. ● Play games in purposive groups/pairs involving multiplication of whole numbers using digital/adapted devices and other resources. Regulate screen resolution or light intensity appropriately.	

Core Competences to be developed: ● Communication and collaboration: as the learner works with peers to make patterns involving multiplication. ● Learning to learn: as the learner explores other methods of working out products of numbers.
Values: Unity: as the learner show unity as they team up with peers to create patterns involving multiplication of numbers with products not exceeding 100.
Pertinent and Contemporary Issues (PCIs): Self-awareness: as the learner enhances self-esteem as they discover own strategies in multiplication and estimation of products of numbers.
Link to other subjects The learner is able to relate the concept of multiplication to sowing tiny seeds gardening skills in Agriculture and Skills.

Strand	**Sub strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Suggested Key Inquiry Question(s)**
1.0 Numbers	**1.5 Division** (6 Lessons)	By the end of the sub strand, the learner should be able to; a) divide up to a 3-digit number by up to a 2-digit number where the dividend is greater than the divisor in real life, b) apply the relationship between multiplication and division in different situations,	The learner is guided to: ● Work out in purposive groups/pairs division of up to a 3-digit number by up to a 2-digit number where the dividend is greater than the divisor using long and short form. Learners with manipulation difficulties could use alternative functional parts of the body or appropriate	1) How is division used in real life? 2) How can we estimate quotients?

		c) estimate quotients by rounding off the dividend and divisor to the nearest ten in real life situations, d) perform combined operations involving addition, subtraction, multiplication and division of whole numbers in different situations, e) appreciate use of division of whole numbers in real life situations.	assistive technology to work out division. ● Collaborate to show that multiplication is the opposite of division. Learners with speech difficulties could use alternative and augmentative modes of communication (AAC) to collaborate with peers. ● Estimate quotients by rounding off the dividend and divisor to the nearest ten in purposive groups/pairs. ● Work out questions involving addition, subtraction, multiplication and division. Learners with manipulation difficulty could use universal cuffs, adapted writing materials such as heavy gauge paper, pen/pencils with grip. ● Create number games and puzzles involving division in purposive groups/pairs.	

			• Share digital resources with peers while playing games involving the division of whole numbers using digital/adapted digital devices and other resources. Regulate screen resolution or light intensity appropriately.	
Core Competences to be developed: • Creativity and Imagination: as the learner creates number games and puzzles involving division. • Digital Literacy: as the learner plays digital games involving divisions.				
Values: Social Justice: as the learner enhances social justice as they share digital resources with peers while playing games involving the division of whole numbers using digital devices and other resources.				
Pertinent and Contemporary Issues (PCIs): Self-esteem: as the learner discovers strategies of working out division and as they create number games and puzzles.				
Link to other subjects The learner is able to relate the concept of division to the allocation and sharing in Agriculture and Nutrition.				

Strand	Sub strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
1.0 Numbers	**1.6 Fractions** (8 Lessons)	By the end of the sub strand, the learner should be able to; a) simplify fractions in different situations, b) compare fractions in different situations, c) order fractions with denominators not exceeding 12 in different situations, d) add two fractions with the same denominator in different situations, e) subtract two fractions with the same denominator in different situations,	The learner is guided to: ● Identify in purposive groups/pairs equivalent fractions using a fraction board or chart. Learners with speech difficulties could use alternative and augmentative modes of communication (AAC) to identify equivalent fractions. ● Represent equivalent fractions using real objects in purposive groups/pairs. Safety of all learners should be observed especially for learners with chronic health conditions when working with real objects. ● Use charts or others resources to express fractions in their simplest forms in purposive groups/pairs. Learners with	1. Why do we order fractions in real life? 2. How are fractions used in real life?

		f) add two fractions with one renaming in different situations, g) subtract two fractions with one renaming in different situations, h) appreciate the use of fractions in real life.	manipulative difficulties could use alternative functional parts of the body or assistive technology or be assisted by peers, learner support assistants or the teacher to express fractions using charts • Arrange given fractions in increasing or decreasing order using different methods in purposive groups/pairs. • Add fractions with the same denominator using paper cut-outs, real objects or other resources. Learners with manipulation difficulties could use appropriate assistive technology such as heavy gauge paper, pen/pencils with grip, universal cuffs to carry out the activity. • Subtract two fractions with the same denominator	

			using paper cut-outs, number lines, real objects, or other resources. Safety precautions should be observed by all learners as they work out fractions using various resources. ● Carry out addition of two fractions by renaming one fraction using equivalent fractions. More time could be allowed for learners with manipulation difficulties to complete the task. ● Carry out subtraction of two fractions by renaming one fraction using equivalent fractions in purposive groups/pairs.	
Core Competences to be developed: ● Learning to learn: as the learner orders, compares and simplifies fractions. ● Digital Literacy: as the learner plays digital games involving fractions.				

Values: Responsibility: as the learner prepares paper cut-outs and collect concrete objects for comparing fractions.
Pertinent and Contemporary issues (PCIS): Safety: as the learner observes safety precautions while collecting concrete objects for learning.
Link to other subjects: The learner is able to relate the concept of fractions to mixtures in Science and Technology.

Strand	**Sub strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Suggested Key Inquiry Question(s)**
1.0 **Numbers**	**1.7** **Decimals** (6 Lessons)	By the end of the sub strand, the learner should be able to; a) identify place value of decimals up to thousandths in different situations, b) order decimals up to thousandths in different situations, c) add decimals up to thousandths in different situations,	The learner is guided to: ● Work out in purposive groups/pairs place value of decimals up to thousandths using a place value chart. Learners with manipulation difficulties could use alternative functional part of the body or assistive technology such adapted writing materials to work out decimals.	1. How do you use decimals in real life? 2. Why is ordering of decimals important?

		d) subtract decimals up to thousandths in different situations, e) appreciate use of decimals in real life situations.	● Order decimals up to thousandths from smallest to largest and from largest to smallest using different methods in purposive groups/pairs. ● Work out addition of decimals up to thousandths using place value apparatus. More time could be allowed for learners with manipulation difficulties. ● Subtract decimals up to thousandths using place value apparatus. ● Collaborate with peers to find information on application of decimals in real life situations. Learners with speech difficulties could use alternative and augmentative modes of communication (AAC) to collaborate with peers.	

Core Competences to be developed Creativity and Imagination: as the learner orders decimals up to thousandths from smallest to largest and from largest to smallest using number cards.
Values: **Unity:** as the learner collaborates with peers to find information on application of decimals in real life situations Social justice: the learner enhances social justice when sharing information on the application of decimals in real life situations.
Pertinent and Contemporary Issues (PCIs): Social cohesion: as the learner collaborates with peers to find information on application of decimals.
Link to other subjects: The learner is able to relate the concept of decimal numbers to reading quantities of ingredients in Agriculture and Nutrition.

Strand	**Sub strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Suggested Key Inquiry Question(s)**
1.0 Numbers	**1.8 Simple Equations** (6 Lessons)	By the end of the sub strand, the learner should be able to; a) form simple equations with one unknown involving real life situations, b) solve simple equations with one unknown involving real life situations,	The learner is guided to: • Discuss in purposive groups/pairs and come up with equations with one unknown from daily experiences. Learners with speech difficulties could use alternative and augmentative modes of communication-AAC (residual speech/ digital devices with text-to-speech application/	How are equations used in real life?

		c) appreciate use of equations in solving problems in real life.	point/sign/write) during the discussion. ● Use real objects in purposive groups/pairs to form equations with one unknown. Safety precautions should be observed by all learners as they use real objects to form equations. Learners with manipulation difficulties could use any alternative functional part of the body to carry out the activity. ● Team with peers to solve equations with one unknown. ● Use digital/adapted digital devices or other resources to learn more about equations. Learners with short stature, those using wheelchairs and those using positioning devices could be appropriately positioned or use height-adjustable surfaces, lowered surfaces as they work with	

			digital devices. Adjust light/ glare on the screens of the digital devices appropriately for learners who are sensitive to light.	

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 thousands	The learner uses place value and total value of digits up to hundreds of thousands correctly and systematically.	The learner uses place value and total value of digits up to hundreds of thousands correctly.	The learner uses place value or total value of digits up to hundreds of thousands correctly	The learner uses place value or total value of digits less than hundreds of thousands partially
Ability to read and write numbers up to tens of thousands in symbols and in words.	The learner reads and writes numbers up to tens of thousands in symbols and in words correctly and proficiently.	The learner reads and writes numbers up to tens of thousands in symbols and in words accurately.	The learner reads or writes numbers up to tens of thousands in symbols and in words accurately.	The learner reads or writes numbers up to tens of thousands in symbols or in words partially

Ability to order and round off numbers up to tens of thousands.	The learner orders and rounds off numbers up to 10, 000 systematically and correctly.	The learner orders and rounds off numbers up to 10, 000 correctly.	The learner orders or rounds off numbers up to less than 10, 000 correctly.	The learner orders or rounds off numbers up to less than 10, 000 partially.
Ability to aplly Least Common Multiple (LCM), Highest Common Factor (HCF), Greatest Common Divisor (GCD) and divisibility tests of 2, 5 and 10.	The learner applies LCM, HCF, GCD and divisibility tests of 2, 5 and 10 correctly and systematically.	The learner applies LCM, HCF, GCD and divisibility tests of 2, 5 and 10 correctly.	The learner applies at least three of the following: LCM, HCF, GCD or divisibility tests of 2, 5 and 10 correctly.	The learner applies one of the following: LCM, HCF, GCD or divisibility tests of 2, 5 and 10 correctly.
Ability to add up to 6-digit numbers without regrouping and with double regrouping up to a sum of 1,000 000.	The learner adds up to 6-digit numbers without regrouping and with double regrouping up to a sum of 1,000 000 correctly and systematically	The learner adds up to 6-digit numbers without regrouping and with double regrouping up to a sum of 1,000 000 correctly.	The learner adds up to 6 - digit numbers without regrouping or with double regrouping up to a sum of 1,000 000 correctly.	The learner adds up to 6-digit numbers without regrouping or with double regrouping up to a sum less than 1,000 000 correctly

Ability to create patterns involving addition, subtraction and multiplication.	The learner creates patterns involving addition, subtraction and multiplication accurately and creatively.	The learner creates patterns involving addition, subtraction and multiplication accurately.	The learner creates patterns involving any two of the following: addition, subtraction or multiplication accurately.	The learner creates patterns involving any one of the following: addition, subtraction or multiplication accurately.
Ability to subtract up to 6-digit numbers without regrouping and with regrouping	The learner subtracts up to 6-digit numbers without regrouping and with regrouping correctly and systematically.	The learner subtracts up to 6-digit numbers without regrouping and with regrouping correctly.	The learner subtracts up to 6-digit numbers without regrouping or with regrouping correctly.	The learner subtracts up to 6-digit numbers without regrouping correctly.
Ability to Multiply up to a 3-digit number by a 2-digit number	The learner multiplies a 3-digit number by a 2-digit number and a single digit; 2 - digit by 2 - digit and a single digit number correctly and systematically.	The learner multiplies a 3-digit number by a 2-digit number and a single digit; 2 - digit by 2 - digit and a single digit number correctly.	The learner multiplies a 3-digit number by a 2-digit number or a single digit; 2-digit by 2-digit or a single digit number correctly.	The learner multiplies a 2-digit number by a 2-digit number or a single digit number correctly.

Ability to divide up to a 3-digit number by up to a 2-digit number where the dividend is greater than the divisor.	The learner divides a 3-digit number by a 2-digit number and a single digit; 2-digit by a 2-digit and a single digit number where the dividend is greater than the divisor correctly and systematically.	The learner divides a 3-digit number by a 2-digit number and a single digit; 2-digit by a 2-digit and a single digit number where the dividend is greater than the divisor correctly.	The learner divides a 3-digit number by a 2-digit number or a single digit; 2-digit by 2-digit or a single digit number where the dividend is greater than the divisor correctly.	The learner divides a 2-digit number by a 2-digit number or a single digit number where the dividend is greater than the divisor correctly.
Ability to perform combined operations involving addition, subtraction, multiplication and division of whole numbers.	The learner performs combined operations involving addition, subtraction, multiplication and division of whole numbers correctly and systematically.	The learner performs combined operations involving addition, subtraction, multiplication and division of whole numbers correctly.	The learner performs combined operations involving addition, subtraction, multiplication or division of whole numbers correctly.	The learner performs combined operations involving one of the following: addition, subtraction, multiplication and division of whole numbers correctly.
Ability to use and compare fractions to make decisions.	The learner uses and compares fractions to make decisions accurately and systematically.	The learner uses and compares fractions to make decisions accurately.	The learner uses or compares fractions to make decisions accurately.	The learner uses fractions accurately.

Ability to simplify and order fractions with denominators not exceeding 12.	The learner simplifies and orders fractions with denominators not exceeding 12 accurately and systematically.	The learner simplifies and orders fractions with denominators not exceeding 12 accurately.	The learner simplifies or orders fractions with denominators not exceeding 12 accurately	The learner simplifies fractions with denominators not exceeding 12 accurately.
Ability to add and subtract fractions.	The learner adds and subtracts fractions correctly and systematically.	The learner adds and subtracts fractions correctly.	The learner adds or subtracts fractions correctly.	The learner adds fractions correctly.
Ability to identify and order decimals up to thousandths.	The learner identifies and orders decimals up to thousandths accurately and systematically.	The learner identifies and orders decimals up to thousandths accurately.	The learner identifies and orders decimals up to hundredths accurately.	The learner identifies and orders decimals up to tenths accurately.
Ability to add and subtract decimals up to thousandths.	The learner adds and subtracts decimals up to thousandths correctly and systematically.	The learner adds and subtracts decimals up to thousandths correctly.	The learner adds and subtracts decimals up to hundredths correctly.	The learner adds and subtracts decimals up to tenths correctly.

Ability to form and solve simple equations with one unknown involving real life situations.	The learner forms and solves simple equations with one unknown involving real life situations accurately and systematically.	The learner forms and solves simple equations with one unknown involving real life situations accurately.	The learner forms or solves simple equations with one unknown involving real life situations accurately.	The learner forms simple equations with one unknown involving real life situations accurately.

STRAND 2.0: MEASUREMENT

Strand	Sub strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Measurement	**2.1 Length** (12 lessons)	By the end of the sub strand, the learner should be able to; a) identify the kilometre (km) as a unit of measuring length in real life, b) estimate distance in kilometres in real life situations, c) identify the relationship between the kilometre (km) and the metre (m) in different situations, d) convert kilometres to metres and metres to kilometres in different situations, e) add metres and kilometres in real life situations,	The learner is guided to: ● Discuss in purposive groups/pairs the kilometre as a unit of measuring length real life. Learners with speech difficulties could use alternative and augmentative modes of communication (AAC) or use residual speech or be lip-read by peers, learner support assistance or teacher to discuss unit of measuring length. ● Team up with peers to estimate distance in kilometres. More time could be allowed for learners with manipulation difficulties to perform the task.	1. How do you measure distance? 2. Why do you measure distance?

		f) subtract metres and kilometres in real life situations, g) multiply metres and kilometres by whole numbers in real life situations, h) divide metres and kilometres by whole numbers in real life situations, i) appreciate the use of kilometres and metres in measuring length in real life.	• Work with peers to establish the relationship between the kilometre and metre. Learners with manipulation difficulties could use alternative functional parts of the body or appropriate assistive technology to establish the relationship between kilometre and metre. • Express the distance from kilometres to metres and metres to kilometres. • Carry out in purposive groups/pairs addition involving distance in kilometres and metres. Learners with manipulation difficulty could use the adapted writing materials such as universal cuffs, pens with grip to work out. • Carry out subtraction involving distance in kilometres and metres.	

			• Carry out multiplication involving distance in kilometres and metres. More time could be allowed for learners with manipulation difficulties to complete the calculations. • Carry out division involving distance in kilometres and metres. • Use digital/adapted digital devices or other resources to get more information involving length in kilometres and metres. Screen resolution or light intensity could be regulated appropriately with visual difficulties.	
Core Competences to be developed: • Creativity and Imagination: as the learner measures distance estimated and compare findings with peers. • Critical thinking and problem solving: as the learner establishes the relationship between the kilometre and metre practically.				

Values: ● Integrity: as the learner shows integrity as they measure and record estimated distances practically using ropes and other learning materials. ● Respect: as the learner shows respect as they take turn in measuring distance in kilometres practically using ropes.
Pertinent and Contemporary Issues (PCIs): Safety: as the learner observes safety precautions while handling measuring instruments to enhance safety.
Link to other subjects: The learner is able to link measurement of length to construction a food preservation equipment in Agriculture and Nutrition.

Strand	**Sub Strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Suggested Key Inquiry Question(s)**
2.0 Measurement	**2.2 Area** (6 Lessons)	By the end of the sub strand, the learner should be able to; a) identify the square centimetre (cm^2) as a unit of measuring area in real life, b) work out area of rectangles and squares in square centimetres (cm^2) in different situations, c) appreciate the use of	The learner is guided to: ● Discuss in purposive groups/pairs and measure, trace and cut out 1 cm by 1cm units, and refer the area of each as one square centimetre ($1cm^2$). Learners with manipulation difficulties could use alternative functional parts of the body or appropriate assistive technology or be	How can you determine the area of different surfaces?

		cm^2 in working out area in real life.	provided with adapted measuring, tracing and cutting materials as they carry out this activity. Safety for all learners should be observed. • Cover a given surface using 1-centimetre square cut outs and count the number of cut outs to get the area in cm^2. More time could be allowed for learners with speech difficulties to perform the activity. • Establish in purposive groups/pairs area of rectangles and squares in cm^2 as the product of the number $1cm^2$ units in the row by the number of units in the column, area of rectangle or square = length x width. • Team up with peers to play games involving area using multiplication charts. Create a conducive environment and adequate space for learners	

			with mobility difficulties as they play games and ensure safety standards are upheld for all learners.	

Core Competences to be developed:

- Creativity and imagination: as the learner uses paper cut outs in covering plane surfaces to get area in cm^2.
- Self- efficacy: as the learner measures, traces and cuts out 1 cm by 1cm units, and refer the area of each as one square centimetre ($1cm^2$)

Values:

Unity: as the learner shows unity as they team up with peers to play games involving area using multiplication charts.

Pertinent and Contemporary Issues (PCIs):

Environmental awareness: as the learner covers a given surface from the environment using 1-centimetre square cut outs and count the number of cut outs to get the area in cm^2

Link to other subjects:

Learner relates concept of area to planting fields in Agriculture and Nutrition.

Strand	Sub strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Measurement	**2.3 Volume** (6 Lessons)	By the end of the sub strand, the learner should be able to; a) identify the cubic centimetre (cm^3) as a unit of measuring volume in different	The learner is guided to: • Measure the sides of a 1cm cube and identify it as a unit of measuring volume. Learners with speech difficulties could use alternative and	How is Volume applicable in real life?

		situations, b) derive the formula for the volume of cuboid as v= l x w x h practically, c) work out volume of cuboids in cubic centimetres (cm^3) using the formula, d) derive the formula for the volume of cube as v= s x s x s practically, e) work out volume of cubes in cubic centimetres ($cm^{3)}$ using the formula, f) appreciate use of cubic centimetres in measuring volume in real life.	augmentative modes of communication (AAC) as they identify. ● Arrange a number of cubes along the length, width and vary the number of layers. More time could be allowed for learners with manipulation difficulties to complete carrying out the task. ● Count the number of cubes used in activity above and record in purposive groups/pairs. ● Establish that the total number of cubes represents the volume of the cube or cuboid formed. ● Count the number of cubes on the length and multiply by the number in the width and the number of layers.	

			The learner to establish the formula for volume (v) of cuboid as v = l x w x h in purposive groups/pairs. ● Discuss in purposive groups/pairs the formula for volume of a cube v= s x s x s where, **s** is the side of a cube. ● Manipulate cubes and cuboids by flipping around using digital devices or other resources. Learners with manipulation difficulties could use alternative functional parts of the body or appropriate assistive technology such as universal cuffs to carry out the activity. ● Work out the volume of cubes and cuboids in cubic centimetres, use digital/adapted digital	

			devices and other resources to play games involving volumes. Learners with postural difficulties could require appropriate positioning. Learners with short stature those using wheel chairs could require accessible surfaces for better or enhanced use of digital devices. Adjust the light intensity for learners with visual difficulties.	

Core Competences to be developed:

- Learning to learn: as the learner counts the number of cubes on the length and multiply by the number in the width and the number of layers to establish the formula for volume (v) of a cuboid.
- Creativity and imagination: as the learner counts the number of cubes to establish that the total number of cubes represents the volume of cuboid formed.

Values: Responsibility: as the learner shows responsibility as they handle the various objects in the environment.
Pertinent and Contemporary Issues (PCIs): Safety: as the learner observes safety while handling the various objects in the environment to enhance safety.
Link to other subjects: The learner is able to relate concept of volume to construction of innovative watering equipment in Agriculture and Nutrition.

Strand	**Sub strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Suggested Key Inquiry Question(s)**
2.0 Measurement	**2.4 Capacity** (12 Lessons)	By the end of the sub strand, the learner should be able to; a) identify the millilitre as a unit of measuring capacity in real life, b) measure capacity in millilitres in real life situations, c) estimate and measure capacity in multiples of 5 millilitres in different situations,	The learner is guided to: • Collect in purposive groups/pairs safe small containers and read the unit of measurements indicated in them. Learners with manipulation difficulties could use alternative functional parts of the body or appropriate assistive technology to carry out the activity. Safety of all learners should be observed	How are litres and millilitres used in day-to-day life?

		d) identify the relationship between litres and millilitres in real life, e) convert litres to millilitres and millilitres to litres in real life situations, f) add litres and millilitres in real life situations, g) subtract litres and in real life situations, h) multiply litres and millilitres by whole numbers in real life situations, i) divide litres and millilitres by whole numbers in different situations, j) appreciate use of litres and millilitres in measuring capacity in real life.	and especially those with chronic health conditions as they collect containers. ● Use smaller containers with capacity in millilitres to fill bigger containers in purposive groups/pairs. ● Identify containers with capacity of 5 millilitres and use them to fill other containers. Learners with speech difficulties could use alternative and augmentative modes of communication (AAC) to identify. ● Share tasks with peers while filling small containers with water and measure the capacity in millilitres using a container graduated in millilitres. More time could be allowed for learners with manipulation difficulties to perform the activity. ● Use digital/adapted digital	

			device or other resources to find the relationship between millilitres and litres. Screen resolution or light intensity could be regulated appropriately for learners with visual difficulties. ● Use a container labelled in millilitres to fill a container labelled in litres and find the relationship in purposive groups/pairs. ● Carry out operations involving addition, subtraction, multiplication and division of litres and millilitres by whole numbers. More time could be allowed for learners with manipulation difficulties to complete the task.	
Core Competency to be developed: Critical thinking and problem solving: as the learner converts units of capacity, relate units of capacity and work questions involving capacity.				

Values: Responsibility: as the learner shows responsibility as they share tasks with peers while filling small containers with water and measure the capacity in millilitres using a container graduated in millilitres**.**
Pertinent and Contemporary Issues (PCIs): Social cohesion: as the learner enhancse social cohesion as they work with peers to estimate and measure capacity of different containers using a container graduated in millilitres.
Link to other subjects: The learner is able to relate concept of capacity to water conservation in Science and Technology.

Strand	**Sub strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Suggested Key Inquiry Question(s)**
2.0 Measurement	**2.5 Mass** (12 Lessons)	By the end of the sub strand, the learner should be able to; a) identify the gram as a unit of measuring mass in real life, b) measure mass in grams in different situations, c) estimate and measure mass in grams in different situations,	The learner is guided to: • Identify different small containers with mass labelled grams. Learners with speech difficulties could use alternative and augmentative modes of communication (AAC) or use residual speech or be lip-read by peers, learner support assistance or teacher to identify. • Use a spoon or bottle top scoop sand or soil which is estimated to be about 5 grams. Learners with	Why is measuring of mass important in our day to day life?

		d) identify the relationship between the kilogram and the gram in real life situations, e) convert kilograms to grams and grams to kilograms in real life situations, f) add grams and kilograms in real life situations, g) subtract grams and kilograms in real life situations, h) multiply grams and kilogram by whole numbers in real life situations, i) divide grams and kilograms by whole numbers in real life situations,	manipulative difficulties could use alternative functional parts of the body or assistive technology or be assisted by peers, learner support assistants or the teacher to scoop sand or soil. ● Use the spoon or the bottle top to fill other container with soil or sand and estimate their masses. More time could be allowed for learners with manipulation difficulties to perform the activity. ● Discuss with peers to establish the relationship between the kilogram and the grams using a beam balance or electronic weighing machine (1kg = 1000g). ● Express various values of mass in kilograms to grams and vice versa in purposive pairs /groups.	

		j) appreciate use of kilograms and grams in measuring mass in real life.	• Convert kilograms to grams and grams to kilogram in real life. Learners with manipulation difficulties could use adapted writing materials or adapted digital devices to work out the conversion. • Determine mass of items in grams and kilograms by addition, subtraction, multiplication and division different in different situations in purposive pairs /groups. • Play games involving mass by measuring mass of different objects or substances using improvised weighing balance. Create a conducive environment and adequate space for learners using mobility devices as they play games involving mass and ensure safety standards are upheld for all learners.	

Core Competency to be developed: Communication and collaboration: as the learner teams up with peers to estimate and measure mass of items in grams using a beam balance or electronic weighing machine.
Values: Respect: as the learner teams up with peers to estimate and measure mass of items in grams using a beam balance or electronic weighing machine.
Pertinent and Contemporary Issues (PCIs): Social cohesion: as the learner teams up with peers to estimate and measure mass of items in grams.
Link to other subjects: Learner is able to relate concept of mass to measuring mass in grams in Science and technology.

Strand	**Sub Strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Suggested Key Inquiry Question(s)**
2.0 Measurement	**2.6 Time** (8 Lessons)	By the end of the sub strand, the learner should be able to; a) identify the second as a unit of measuring time from a clock, b) identify the relationship between the minute and the second in real life situations,	The learner is guided to: ● Work in purposive peers to identify second hand from a clock. Learners with speech difficulties could use alternative and augmentative modes of communication (AAC) to identify.	How can we read and tell time?

		c) convert minutes to seconds and seconds to minutes in real life, d) add minutes and seconds with conversion in real life situations, e) subtract minutes and seconds with conversion in real life situations, f) multiply minutes and seconds by whole numbers in real life situations, g) divide minutes and seconds by whole numbers in real life situations, h) use clocks devices and other resources to read time in seconds from a clock, i) appreciate use of minutes and seconds as units of measuring time in real life situations.	• Carry out activities in purposive groups/pairs taking 10 seconds, let learner relate the activities to what can be done in one tenth of the time taken to do the activity; the time taken is 1 second. Organize a safe conducive environment for the activity. • Measure time taken to do various activities in seconds in purposive pairs /groups. • Establish the relationship between seconds and minute using a clock or stop watch, watches. More time could be allowed for learners with manipulation difficulties to perform the task and speech difficulties for expressing ideas. • Team up purposively with peers to determine time durations in minutes and seconds using different	

			operations in real life situations. ● Use digital/adapted digital devices and other resources to tell time from clocks. Screen resolution could be regulated appropriately for learners with visual difficulties.	
Core Competency to be developed: Learning to learn: as the learner establishes the relationship between seconds and minute using a clock or stop watch, watches.				
Values: Responsibility: as the learner carefully handles while using a clock or stop watch, watches.				
Pertinent and Contemporary Issues (PCIs): Social cohesion: as the learner teams up with peers to determine time durations in minutes and seconds using different operations in real life situations.				
Link to other subjects: The learner is able to relate concept of tine to **c**hange of state of matter due to heating or freezing over time in Science and Technology.				

Strand	Sub strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
2.0 Measurement	**2.7 Money** (8 Lessons)	By the end of the sub strand, the learner should be able to; a) explain the term budget in real life situations, b) identify the importance of a budget in real life, c) prepare a budget of up to 5 items used in daily life, d) explain meaning of tax and its importance to the government, e) identify services provided by banks in real life situations f) identify factors to consider in order to save wisely, g) appreciate use of budgeting, bank services and payment of taxes in real life.	The learner is guided to: ● Discuss in purposive groups/pairs the meaning and importance of a budget, prepare a budget of about 5 items that can be found in the classroom model shop. Learners with speech difficulties could use alternative and augmentative modes of communication-AAC during the discussion. ● Discuss in purposive pairs/groups the meaning and importance of taxes to the governments, and study receipts from sales to identify amount of taxes paid. Learners with manipulation difficulties could use alternative functional parts of the body or appropriate assistive	1. How do you spend your money? 2. Why do citizens pay taxes?

			technology to manipulate the receipt. ● Discuss in purposive pairs/groups provision of loans, safe custody of items, money deposits and withdrawals, savings as services provided by banks. ● Brainstorm on factors to consider when saving money and share with others. More time could be allowed for learners with speech difficulties to express their points. ● Use digital/adapted digital devices to learn how to transfer money from one person to another as part of bank services. Regulate screen resolution or light intensity appropriately for learners with visual difficulty.	

Core Competences to be developed: ● Communication and collaboration: as the leaner discuss and share about preparation of a shopping budget. ● Learning to learn: as learner discusses matters on budgeting, savings, and electronic banking.
Values: Patriotism: as the learner appreciates importance of taxes to the governments of Kenya.
Pertinent and Contemporary Issues (PCIs): Financial literacy: as the learner appreciates the importance budgeting, personal savings and banking services.
Link to other subjects: The learner is able to relate concept of money to Resources and Economic Activities in Kenya in Social Studies.

Suggested Assessment Rubric

Level / Indicator	**Exceeds Expectations**	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Ability to add, subtract, multiply and divide metres and kilometres by whole numbers.	The learner adds, subtracts, multiplies and divides metres and kilometres, by whole numbers accurately and systematically.	The learner adds, subtracts, multiplies and divides metres and kilometres by whole numbers accurately.	The learner adds, subtracts, multiplies or divides metres or kilometres by whole numbers accurately.	The learner adds or subtracts metres or kilometres by whole numbers accurately.

Ability to work out area of rectangles and squares in square centimetres (cm^2)	The learner works out area of rectangles and squares in square centimeters systematically and accurately.	The learner works out area of rectangles and squares in square centimeters accurately.	The learner works out area of rectangles or squares in square centimeters accurately.	The learner works out area of rectangles or squares partially correctly
Ability to work out volume of cuboids and cubes in cubic centimetres (cm^3).	The learner works out volume of cuboids and cubes accurately and systematically.	The learner works out volume of cuboids and cubes accurately.	The learner works out volume of cuboids or cubes accurately.	The learner works out volume of cuboids or cubes partially accurately.
Ability to estimate and measure capacity in multiples of 5 millilitres.	The learner estimates and measures capacity in multiples of 5 milliliters accurately and systematically.	The learner estimates and measures capacity in multiples of 5 milliliters accurately.	The learner estimates or measures capacity in multiples of 5 milliliters accurately.	The learner estimates capacity in multiples of 5 milliliters accurately.
Ability to convert litres to millilitres and millilitres to litres.	The learner converts litres to millilitres and millilitres to litres systematically and accurately.	The learner converts litres to millilitres and millilitres to litres accurately.	The learner converts litres to millilitres or millilitres to litres accurately.	The learner converts litres to millilitres accurately.
Ability to add, subtract, multiply and divide litres and millilitres, by whole numbers	The learner adds, subtracts, multiplies and divides litres and millilitres by whole numbers	The learner adds, subtracts, multiplies and divides litres and millilitres by whole numbers accurately.	The learner adds, subtracts, multiplies or divides litres or millilitres by whole numbers accurately.	The learner adds or subtracts litres or millilitres accurately.

	systematically and accurately.			
Ability estimate and measure mass in grams.	The learner estimates and measures mass in grams systematically and accurately.	The learner estimates and measures mass in grams accurately.	The learner estimates or measures mass in grams accurately.	The learner estimates mass in grams accurately.
Ability to add, subtract, multiply and divide grams and kilograms by whole numbers	The learner adds, subtracts, multiplies and divides grams and kilograms by whole numbers systematically and accurately.	The learner adds, subtracts, multiplies and divides grams and kilograms by whole numbers accurately.	The learner adds, subtracts, multiplies and divides grams or kilograms by whole numbers accurately.	The learner adds or subtracts grams and kilograms accurately.
Ability to add, subtract, multiply and divide minutes and seconds by whole numbers.	The learner adds, subtracts, multiplies and divides minutes and seconds by whole numbers systematically accurately	The learner adds, subtracts, multiplies and divides minutes and seconds by whole numbers accurately.	The learner adds, subtracts, multiplies or divides minutes or seconds by whole numbers accurately.	The learner adds minutes and seconds accurately.

STRAND 3.0: GEOMETRY

Strand	Sub strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
3.0 Geometry	**3.1 Lines** (4 Lessons)	By the end of the sub strand, the learner should be able to; a) identify horizontal and vertical lines in different situations, b) draw horizontal and vertical lines in different salutations, c) identify perpendicular lines in different situations, d) draw perpendicular lines different salutations, e) identify parallel lines different situations, f) draw parallel lines in different salutations,	The learner is guided to: ● Work with peers to identify lines in the classroom and within the environment. Learners with speech difficulties could use alternative and augmentative modes of communication (AAC) to perform the task. ● Describe in purposive pairs/groups lines in the environment and identify them as horizontal and vertical lines, parallel and perpendicular lines. ● Work with purposive peers to draw/trace/stamp and model horizontal and vertical lines, parallel and perpendicular lines. Learners with manipulation difficulties could use alternative	Why are perpendicular lines significant in our day to day life?

		g) appreciate use of various types of lines in real life.	functional parts of the body or appropriate assistive technology to draw and model lines. ● Use digital/adapted digital devices and other resources to draw more lines. Regulate screen resolution or light intensity appropriately.	
Core Competences to be developed: ● Learning to learn: as the learner draws different horizontal, vertical, parallel and perpendicular lines. ● Digital literacy: as the learner uses digital devices to learn more about lines.				
Values: Unity: as the learner works with peers to draw and model horizontal and vertical lines, parallel and perpendicular line.				
Pertinent and Contemporary Issues (PCIs): Environmental awareness: as the learner shows environmental awareness as they team up with peers to identify lines in the classroom and within the environment.				
Link to other subjects: The learner is able to relate line to sketching and drawing in Creative Arts.				

Strand	Sub strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
3.0 **Geometry**	**3.2** **Angles** (6 Lessons)	By the end of the sub strand, the learner should be able to; a) relate a turn to angles in real life, b) read angles from protractor in both directions, c) use protractor to measure angles in different situations d) measure angles in degrees in different situations, e) identify the use of angles in the environment, f) appreciate the use of angles in our day-to-day life.	The learner is guided to: ● Make clockwise, quarter and half turn, and relate them to angles in the environment. Create a conducive environment and adequate space for learners with mobility difficulties and those using positioning devices to perform the task and ensure safety standards are upheld for all learners. ● Discuss in purposive pairs/groups the use of angles in the environment. Learners with speech difficulties could use alternative and augmentative modes of communication (AAC) to discuss. ● Team up with peers to make a unit angle and use it to measure angles in the environment. Learners with manipulation	How are angles used in the environment?

			difficulties could use adapted writing and measuring materials to measure angels. ● Divide a 10^{o} angle into 10 equal parts and identify each part as equal to 1 degree. ● Measure angles in degrees using a protractor. More time could be allowed for learners with manipulation difficulties to measure the angles. ● Work with peer to measure angles in degrees using a protractor and share results with others. ● Use digital/adapted digital devices and other resources to draw plane figures and learn about angles. Regulate screen resolution or light intensity appropriately for learners sensitive to light.	

Core Competences to be developed: ● Communication and collaboration: as the learner teams up with peers to make a unit angle and use it to measure angles in the environment. ● Learning to learn: as the learner measures angles in degrees using a protractor and share results with others.
Values: Responsibility: as the learner teams up with peers to make a unit angle and use it to measure angles in the environment.
Pertinent and Contemporary Issues (PCIs): Social cohesion: as the learner works with peer to measure angles in degrees using a protractor and share results with others.
Link to other subjects: The learner is able to relate line to sketching and drawing in Creative Arts.

Strand	**Sub strand**	**Specific Learning Outcomes**	**Suggested Learning Experiences**	**Suggested Key Inquiry Question(s)**
3.0 Geometry	**3.3 Three Dimension (3-D) Objects** (6 Lessons)	By the end of the sub strand, the learner should be able to; a) describe 3-D objects in the environment, b) describe 2-D shapes in 3-D objects in the environment,	The learner is guided to: ● Share tasks with peers to identify, collect objects and discuss cubes, cuboids, cylinders, spheres and pyramids as 3-D objects in the environment and share with other groups. Learners with	How are 3-D objects used in the environment?

		c) appreciate the use of 3-D objects in the environment.	speech difficulties could use Alternative and Augmentative modes of Communication (AAC) to identify and discuss. Learners with manipulation difficulties could use alternative functional parts of the body or appropriate assistive technology to collect and share the objects. ● Watch a video on 3-D objects. Learners with short stature, those using positioning devices, wheel chairs users could require preferential seating for better or enhanced view. Adjust the light intensity for learners with visual difficulties. ● Describe in purposive groups/pairs 2-D shapes found in 3-D objects and share with other groups. ● Use digital/adapted digital devices and other resources to draw/trace/mount/stamp and learn more about 3-D objects.	

Core Competency to be developed: Critical thinking and imagination: as the learner identify 2-D shapes in 3-D objects in the environment.
Values: Responsibility: as the learner shares tasks with peers while identifying and collecting 3-D objects in the environment.
Pertinent and Contemporary Issues (PCIs): Environmental awareness: as the learner identifies and collect objects 3-D objects in the environment.
Link to other subjects: The learner is able to relate the concept of 3-D objects and 2-D shapes to modelling in **Creative Arts.**

Suggested Assessment Rubric

Level / **Indicator**	**Exceeds Expectations**	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Ability to draw horizontal, vertical, Perpendicular and parallel lines.	The learner draws horizontal, vertical, Perpendicular and parallel lines accurately and systematically.	The learner draws horizontal, vertical, Perpendicular and parallel lines accurately.	The learner draws horizontal, vertical, Perpendicular or parallel lines accurately.	The learner draws any two of horizontal, vertical, Perpendicular or parallel lines accurately.
Ability to read and use a protractor as a tool for measuring angles	The learner reads and uses protractor as a tool for measuring angles accurately and systematically.	The learner reads and uses protractor as a tool for measuring angles accurately.	The learner reads or uses protractor as a tool for measuring angles accurately.	The learner reads a protractor as a tool for measuring angles accurately.

Ability to identify the degree and measure angles in degrees.	The learner identifies the degree and measures angles in degrees accurately and systematically.	The learner identifies the degree and measures angles in degrees accurately.	The learner identifies the degree or measures angles in degrees accurately.	The learner identifies the degree or measure angles in degrees partially accurately.
Ability to describe 2-D shapes in 3-D objects in the environment	The learner describes 2-D shapes in 3-D objects accurately and systematically	The learner describes 2-D shapes in 3-D objects accurately.	The learner describes most 2-D shapes in 3-D objects accurately.	The learner describes few 2-D shapes in 3-D objects partially accurately.

STRAND 4.0: DATA HANDLING

Strand	Sub strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Question(s)
4.0 Data Handling	**4.1 Data Representation** (6 Lessons)	By the end of the sub strand, the learner should be able to; a) collect data of about 30 items relating to real life experiences, b) draw a table to record data from real life situations, c) draw tally marks of the collected and any data, d) prepare a frequency table to represent data, e) interpret data represented by frequency tables, f) appreciate use frequency tables in real life.	The learner is guided to: ● Team with peers to collect data involving day to day experiences such as marks, shoe number, age of learners in a class etc. Learners with manipulation difficulties could use alternative functional parts of the body or appropriate assistive technology to collect data. ● Prepare data collection and recording tools in purposive groups/pairs and record data on books or charts. ● Discuss in purposive groups/pairs and draw/stamp/mount tally marks for the data. Learners with speech	Why is representing data in tables important?

			difficulties could use alternative and augmentative modes of communication (AAC)to discuss. ● Organise in purposive groups/pairs data in a table from real life situations. ● Discuss in purposive groups/pairs information represented by objects piled vertically. ● Use digital/adapted digital devices and other resources to learn more on representing data in tables. Regulate screen resolution or light intensity appropriately.	
Core Competences to be developed: ● Learning to learn: as the learner practices piling items as a form of data organization. ● Digital literacy: as the learner uses digital devices and other resources to learn more about frequency tables.				

Values: Unity: as the learner shows unity as they team with peers to collect data involving day to day experiences.
Pertinent and Contemporary Issues (PCIs): Safety: as the learner observes safety measures as they use digital devices and other resources to learn more on representing data in tables.
Link to other subjects: The learner is able to relate data representation to population Distribution in the County in Social Studies.

Suggested Assessment Rubric

Level / **Indicator**	**Exceeds Expectations**	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Ability to collect data, draw tally marks and record data on a table	The learner collects data, draws tally marks and records data on a table accurately and systematically.	The learner collects data, draws tally marks and records data on a table accurately.	The learner collects data, draws tally marks or records data on a table accurately.	The learner collects data or draws tally marks data on a table accurately.

Draw frequency tables, represent and interpret data	The learner draws frequency tables, represents and interprets data accurately and systematically.	The learner draws frequency tables, represents and interprets data accurately.	The learner draws frequency tables, represents or interprets data accurately	The learner draws frequency tables or represents data accurately.

APPENDICES

APPENDIX I: LIST OF LEARNING RESOURCES

Strand	Sub strand	Suggested Assessment Methods	Suggested Learning Resources	Suggested non-formal Activities
1.0 Numbers	Whole Numbers	a) Written exercises b) Oral questions c) Observation d) Group discussion	• Place Value • Apparatus • Number Charts • Number Cards • Multiplication Table • Adapted writing materials such as heavy gauge paper, pens/pencils with grip • Universal cuffs • splints	1. Learners to play number games e.g. competing forming largest number from given digits. 2. Learners to play number Games using Digital devices.

	Addition	a) Written exercises b) Oral questions c) Observation d) Group discussion	• Place Value Chart • Abacus • Adapted writing materials such as heavy gauge paper, pens/pencils with grip • Universal cuffs • splints	1. Learners to play games involving number patterns. 2. Learners to play number Games using Digital devices.
	Subtraction	a) Written exercises b) Oral questions c) Observation d) Group discussion	• Place Value Chart • Abacus • Adapted writing materials such as heavy gauge paper, pens/pencils with grip • Universal cuffs • splints	1. Learners to work out the difference in scores for various teams during play. 2. Learners to work out the difference of any two Numbers during play.

	Multiplication	a) Written exercises b) Oral questions c) Observation d) Group discussion	• Multiplication Tables • Adapted writing materials such as heavy gauge paper, pens/pencils with grip • Universal cuffs • splints	1. Learners to work out the number of seedlings in a seedbed by considering the number of rows and columns. 2. Learners to work out the total number of learners in a class by counting Rows and columns.
	Division	a) Written exercises b) Oral questions c) Observation d) Group discussion	• Multiplication Tables • Adapted writing materials such as heavy gauge paper, pens/pencils with grip • Universal cuffs • splints	1. Learners to create number games during play activities e.g. What is 15 divided by 4? 2. Learners to divide Numbers during play.
	Fractions	a) Written exercises b) Oral questions c) Observation d) Group discussion	• Equivalent Fraction Board • Circular Cut outs • Rectangular Cut outs Counters • Adapted writing materials such as heavy	1. Learners to play games on creating equivalent fractions. 2. Learners to represent Equivalent fractions Using circular cut

			gauge paper, pens/pencils with grip • Universal cuffs • Splints • Looped scissors or scissors with grip	outs during play
	Decimals	a) Written exercises b) Oral questions c) Observation d) Group discussion	• Place Value Charts • Number Cards • Adapted writing materials such as heavy gauge paper, pens/pencils with grip • Universal cuffs • splints	1. Learners to represent decimals using paper cut outs during play. 2. Learners to represent Decimals on place value charts during play.
2. 0 Measurement	Length	a) Written exercises b) Oral questions c) Observation d) Group discussion e) Project	• Metre Rule • 1 metre Sticks • Tape Measure • Adapted writing materials such as heavy gauge paper, pens/pencils with grip • Universal cuffs • splints	1. Learners to mark distances of 400m, 200m during play. 2. Learners to compete running 100 metres during play.

	Area	a) Written exercises b) Oral questions c) Observation d) Group discussion e) Project	• Square Cut Outs • 1cm Squares • 1m Squares • Adapted writing materials such as heavy gauge paper, pens/pencils with grip • Universal cuffs • splints	1. Learners to determine area of playing fields E.g. Netball pitch, football 2. Learners to determine area of their desks during play.
	Volume	a) Written exercises b) Oral questions c) Observation d) Group discussion e) Project	• Cubes • Cuboids • Videos • Adapted writing materials such as heavy gauge paper, pens/pencils with grip • Universal cuffs • splints	1. Learners to stack up same items during play. 2. Learners to stack up cubes and cuboids during play.
	Capacity	a) Written exercises b) Oral questions c) Observation d) Group discussion e) Project	• Tea Spoons • Videos • Containers of different sizes • Water, Sand, Soil • Adapted writing materials such as heavy gauge paper, pens/pencils	1. Learners to fill big containers using small containers during play. 2. Learners to empty big containers using small containers during

			with grip • Universal cuffs • splints	play.
	Mass	a) Written exercises b) Oral questions c) Observation d) Group discussion e) Project	• Tea Spoons • Soil or Sand • Manual/Electronic Weighing Machine • Videos • Beam Balance • Adapted writing materials such as heavy gauge paper, pens/pencils with grip • Universal cuffs • splints	1. Learners to play games using a sea saw. 2. Learners to play games using a beam balance.

	Time	a) Written exercise b) Oral questions c) Observation d) Group discussion	• Analogue • Digital Clocks • Digital Watches • Stop Watch Adapted writing materials such as heavy gauge paper, pens/pencils with grip • Universal cuffs • splints	1. Learners to observe shadows and relate them to different times of the day. 2. Learners to discuss activities done at different times of the Day during play.
	Money	a) Written exercises b) Oral questions c) Observation d) Group discussion e) Project	• Price List • Classroom shop • Electronic Money Tariffs Chart • Adapted writing materials such as heavy gauge paper, pens/pencils with grip • Universal cuffs • splints	1. Learners to role play shopping activities. 2. Learners to role play banking activities e.g. Depositing money.

3.0 GEOMETRY	Lines	a) Written exercises b) Oral questions c) Observation d) Group discussion	• Chalk Board Ruler • 30cm Ruler • Straight Edges • Adapted writing materials such as heavy gauge paper, pens/pencils with grip • Universal cuffs • splints	1. Learners to make lines using items like strings, number them and skip on them during play. 2. Learners to identify Different lines during play.
	Angles	a) Written exercises b) Oral questions c) Observation d) Group discussion e) Project	• Unit Angles • Protractor • Rulers • Adapted writing materials such as heavy gauge paper, pens/pencils with grip • Universal cuffs • splints	1. Learners to demonstrate angles during play. 2. Learners to identify angles in the environment during Play.

	3-D Objects	a) Written exercises b) Oral questions c) Observation d) Group discussion e) Project	• Cubes • Cuboids • Cylinders, Spheres • Rectangles • Circle and • Triangle • Cut outs of different sizes • Adapted writing materials such as heavy gauge paper, pens/pencils with grip • Universal cuffs • Splints • Looped scissors/ scissors with grip	1. Learners to model toys of cars or dolls during play. 2. Learners to model cubes, cuboids, cylinders during play.
4.0 Data Handling	Data Representation	a) Written exercises b) Oral questions c) Observation d) Group discussion e) Project	• Data from different sources • Adapted writing materials such as heavy gauge paper, pens/pencils with grip • Universal cuffs • splints	1. Learners to represent different number of items using sticks as tallies practically. 2. Learners to represent different numbers on the

				ground using tally Marks.

NOTE
The following ICT devices may be used in the teaching/learning of mathematics at this level:
Learner digital devices (LDD), Teacher digital devices (TDD), Mobile phones, Digital clocks, Television sets, Videos, Cameras, Projectors, Radios, DVD players, CD's, Scanners, Internet, adapted digital devices among others.

APPENDIX II: SUGGESTED ASSESSMENT METHODS AND TOOLS

1. Written tests and quizzes
2. Rating scales
3. Projects
4. Observation Schedules
5. Portfolio
6. Assessment Rubric

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	• 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	• Written responses • Use of AAC (Augmentative and Alternative modes of Communication) e.g. talking books, gestures, body movement, sign language, alphabet cards, facial expressions • Adjustment of time according to individual needs
3.	Portfolio	• 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	• 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	• 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 III: CSL GUIDELINES FOR UPPER PRIMARY (GRADE 4-6)

At this level, the goal of the CSL activity is to provide linkages between concepts learnt in the various Learning Activities and the real life experiences. Learners begin to make connections between what they learn and the relevance to their daily life. CSL is hosted in the Social studies learning area. The implementation of the CSL activity is a collaborative effort where the class teacher coordinates and works with other subject teachers to design and implement the integrated CSL activity. Though they are teacher-guided, the learners should progressively be given more autonomy to identify problems and come up with solutions. The safety of the learners should also be taken into account when selecting the CSL activity. The following steps for the integrated CSL activity should be staggered across the school terms:

Steps in carrying out the integrated CSL activity
1) Preparation ● Map out the targeted core competencies, values and specific learning areas skills for the CSL activity ● Identify resources required for the activity (locally available materials) ● Stagger the activities across the term (Set dates and time for the activities) ● Communicate to learners, parents/caregivers/guardians, school administration, teachers and other relevant stakeholders in the school community ● Identify and develop assessment tools

2) Implementation CSL Activity

- Assigning roles to learners.
- Ensure every learner actively participates in the activity
- Observe learners as they carry out the CSL activity and record feedback**.**
- Use an appropriate assessment tool to assess both the process and the product (Assess learner's work from the beginning to the end product)
- Assess the targeted core competencies, values and subject skills.

3) Reflection on the CSL Activity

Conduct a self-evaluation session with learners on the integrated CSL activity undertaken by discussing the following:

- what went well and why
- what did not go well and why,
- what can be done differently next time
- what they have learnt.

There will be one integrated CSL activity that will be conducted annually**.** The thematic areas for the integrated CSL activity will be derived from the broader categories of the PCIs and concepts from the various Learning Areas. Teachers are expected to vary the themes yearly to allow learners to address different PCIs within their contexts. There should be a linkage between the skills from the learning areas and the themes.

The integrated CSL activity will take a Whole School Approach (WSA) where the entire school community is involved (learners, parents/caregivers/guardians, school administration, teachers). Parents/caregivers/guardians are key stakeholders in the planning and execution of the CSL activity. Although the teacher takes the lead role in the planning and integration of the CSL activity, learners will be expected to participate actively in the whole process.

The CSL activity provides an opportunity for the development of core competencies and the nurturing of various values. The teacher is expected to vary the core competencies and values emphasised in the activity yearly.

ASSESSMENT OF THE CSL ACTIVITY

Assessment of the integrated CSL activity will focus on 3 components namely: skills from various learning areas applied in carrying out the activity, and core competencies and values demonstrated. Assessment should focus on both the process and end product of the CSL activity. The teacher will assess learners in groups using various tools such as an observation schedule, checklist or rating scale or any other appropriate tool.