REPUBLIC OF KENYA
MINISTRY OF EDUCATION

UPPER PRIMARY CURRICULUM DESIGN

MATHEMATICS

FOR LEARNERS WITH HEARING IMPAIRMENT

GRADE 4

KENYA INSTITUTE OF CURRICULUM DEVELOPMENT

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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 four curriculum designs for learners with hearing impairment build on competencies attained by learners at Grade three. 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
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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 four curriculum furthers implementation of the CBC from Grade three 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 four curriculum designs for learner Learners with Hearing 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 four and prepare them for smooth transition to Grade five 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 Hearing Impairment were developed and adapted with the support of the World Bank through the Kenya Primary Education Equity in Learning Programme (KPEELP); a project coordinated by MoE. Therefore, the Institute is very grateful for the support of the Government of Kenya, through the MoE and the development partners for policy, resource and logistical support. Specifically, special thanks to the Cabinet Secretary-MoE and the Principal Secretary – State Department of Basic Education

I also wish to acknowledge the KICD curriculum developers and other staff, all teachers, educators who took part as panellists; the Semi-Autonomous Government Agencies (SAGAs) and representatives of various stakeholders for their roles in the development and adaptation of the Grade four curriculum designs for learners with Hearing 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 four and preparation of learners with Hearing Impairment for transition to Grade five.

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TABLE OF CONTENTS

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 to 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 instil 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-fulfilment**
   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 instil in the learner appreciation of Kenya's rich and diverse cultural heritage. The learner should be able to 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	No. of Lessons
1	English for Learners with Hearing Impairment	5
2	Kiswahili for Learners with Hearing Impairment	4
3	Mathematics for Learners with Hearing Impairment	5
4	Religious Education	3
5	Science & Technology for Learners with Hearing Impairment	4
6.	Agriculture & Nutrition for Learners with Hearing Impairment	4
7.	Social Studies for Learners with Hearing Impairment	3
8	Creative Arts for Learners with Hearing Impairment	6
9.	Pastoral/ Religious Instruction Programme	1
	Total	**35**

LEVEL LEARNING OUTCOMES

By end upper primary education level, the learner should be able to:

a) Communicate appropriately using signing, verbal and non-verbal in a variety of contexts.
b) Demonstrate mastery of number concepts to solve problems in day to day life
c) Demonstrate social skills, moral and religious values for positive contribution to the society.
d) Develops one's interests and talents for personal fulfilment
e) Make informed decisions as local and global citizens of a diverse, democratic society in an independent world.
f) Explore, manipulate, manage and conserve the environment effectively for learning and sustainable development.
g) Acquire digital literacy skills for learning and enjoyment.
h) appreciation of the country's rich and diverse cultural heritage for harmonious living

ESSENCE STATEMENT

Mathematics is a vehicle of development and improvement of a country's economic development. By learning mathematics, learners with hearing impairment develop an 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 competences acquired by the learner in the Early years of Education. Learning Mathematics will also enhance the learner's competencies in numeracy as a foundation of Science Technology Engineering and Mathematics (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. Further, this design has been adapted to ensure that learners who are Deaf and those with Hard of Hearing learn effectively. The adaptations include suggestions for provision of sign interpretation on aspects that require use of sound, use of digital devices with assistive technology, use of visual aids such as charts, maps and diagrams, use of hands-on activities, guided demonstrations, purposeful pairing and use of adapted learning resources. The design has also incorporated alternative learning outcomes and activities to enhance the acquisition of sign language vocabulary to learners with Hearing Impairments.

SUBJECT GENERAL LEARNING OUTCOMES

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) Describe properties of geometrical shapes and spatial relationships in real life experiences.
4) Collect, represent and analyse data to solve problems.
5) Analyse 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) Demonstrate values, competencies and management of pertinent and contemporary issues for healthy relationships.

SUMMARY OF STRANDS AND SUB STRANDS GRADE 4

S/No	Strand	SUB-STRAND	Suggested Number of Lessons
1.0	**Numbers**	1.1 Whole Numbers	10
		1.2 Addition	8
		1.3 Subtraction	8
		1.4 Multiplication	8
		1.5 Division	8
		1.6 Fractions	6
		1.7 Decimals	10
		1.8 Use of Letters	6
2.0	**Measurement**	1.1 Length	10
		1.2 Area	8
		1.3 Volume	8
		1.4 Capacity	8
		1.5 Mass	8
		1.6 Time	10
		1.7 Money	8
3.0	**Geometry**	1.1 Position and Direction	5
		1.2 Angles	5
		1.3 Plane Figures	6
4.0	**Data Handling**	1.1 Data	10
			150

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
1.0 NUMBERS	**1.1 WHOLE NUMBERS** **(20 Lessons)**	By the end of the sub strand, the learner should be able to: a) sign terms related to whole numbers and place value, b) use place value and total value of digits up to tens of thousands in daily life situations, c) sign read and write	● In pairs or groups, learners are guided to identify, sign and fingerspell words related to whole numbers such as (place value, tens, hundreds, thousands, digit, total value.) ● In groups or pairs, learners are guided to observe the teacher demonstrating or watch captioned or signed videos on writing the place values of numbers up to a thousand. ● In pairs or groups, learners are guided to identify and use place values of up to tens of thousands using place value apparatus. ● In pairs or groups, learners are guided to use print	1. How do you write numbers in words? 2. How can you find the place value of a digit in a number? 3. How can you find the total value of a digit in a number?

		numbers up to 10,000 in symbols in real life situations, d) read and write numbers up to 1,000 in words in day to day activities, e) order numbers up to 1,000 in different situations, f) round off numbers up to 1,000 to the nearest tens in different situations, g) identify factors of numbers up	media or digital devices to research, sign read and write on total values of digits up to ten thousand. ● In groups or pairs, learners are guided to discuss and present on writing total values up to ten thousand. ● In groups or pairs, learners are guided to take roles to count using manual signs numbers up to 10,000 in symbols in real life situations. ● In pairs, learners are guided to arrange numbers up to 1,000 in ascending and descending order using number cards and share with other groups. ● In groups, learners are to be	

		to 50 in different contexts, h) identify multiples of numbers up to 100 in different situations, i) use even and odd numbers up to 100 in different situations, j) make patterns involving even and odd numbers in day to day life experiences, k) represent Hindu Arabic numerals	guided to refer to print texts or signed or captioned video and round off numbers up to 1000, then present. ● In pairs or groups, learners are guided to round off numbers up to 1,000 to the nearest ten and share with other groups. ● In groups, learners are guided to use print or digital devices to research on identification of factors of numbers up to 50, then present their findings in class. ● In pairs or groups, learners are guided to identify factors or divisors of numbers up to 50 and share with other groups. ● In pairs or groups, learners	

		using Roman numerals up to 'X' in different situations, l) use digital devices or other resources for learning whole numbers, m) appreciate use of numbers in real life situations.	are guided to identify and write multiples of numbers up to 100 and share with other groups. ● In pairs or groups, learners are guided to use print texts available or watch a captioned signed video on how to identify even and odd numbers, write down key points then present them in class. ● In pairs or groups, learners are guided to identify ● Even and odd numbers up to 100, share with other groups then keep in their portfolios. ● In groups or pairs, learners to be guided to make patterns from even and odd numbers and write on the charts then paste on the wall for	

			review by other learners ● In groups or pairs learners in class are guided to refer to print texts or watch signed or captioned videos on roman numbers (I - X), then write on a chart for display and review by peers. ● In pairs learners are guided to represent Hindu Arabic numerals using Roman numerals up to (X) using number charts. ● In pairs or groups learners are guided to use print tests, digital devices or any resource available to play digital games on roman numbers.	
Core Competencies to be developed: • Critical thinking and problem solving: explore different possible solutions to a problem as learners use digital devices to research on identification of divisors for some given numbers, and then present their findings in class.				

• Communication and collaboration: observation and signing as learners in groups discuss and present on writing total values up to ten thousand.
Values: • Cultural Respect: as learners represent Hindu Arabic numerals using Roman numerals up to 'X' using number charts. • Responsibility**:** enhanced as learners work in groups using digital devices to search mathematics sites and play digital games.
Pertinent and Contemporary Issues (PCIs): • **Social Cohesion:** as learners work in groups to identify factors/divisors of numbers up to 50 and share backgrounds.
Link to other subjects: ● Learners relate signing and writing numbers in words up to 10,000 to signing and writing in **English.**
Suggested Learning Resources: ● Place value apparatus, Sign Language Dictionaries, number charts, print out texts, number cards, digital devices, multiplication table

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
	1.2 ADDITION (8 Lessons)	By the end of the sub strand, the learner should be able to: a) sign terms related to addition, b) add up to two 4-digit numbers with single regrouping up to a sum of 10,000 in different situations, c) add up to two 4-digit numbers with double regrouping up to a sum of 10,000 in real life situations, d) estimate sum by rounding off numbers to the nearest ten in different situations, e) create patterns involving addition up to a sum of	• In groups or pairs, learners are guided to fingerspell, sign and write words related to addition. Such as add, sum, regroup, digits, estimate, rounding off. • In groups or pairs, learners are guided to discuss and write down the steps for addition of up to two-digit numbers given, with single regrouping up to a sum of 10,000 • In pairs, learners are guided to discuss and work out the addition of two 4-digit numbers without regrouping, then present to other peers. • In groups or pairs, learners	1. How do you add a 2-digit number and a 2-digit number? 2. How do you estimate the answer in addition? 3. How do you form number patterns in addition?

		10,000 in real life situations, f) use IT devices for learning and enjoyment, g) Appreciate application of addition of numbers in real life situations.	are guided to refer to print texts or observe signed or captioned video and write down the steps for addition of up to two 4-digit numbers with single regrouping up to a sum of 10,000. • In pairs or groups learners are guided to add up to two 4-digit numbers with single regrouping up to a sum of 10,000 using number cards, charts or place value apparatus. • In pairs, learners are guided to add up to two 4-digit numbers with double regrouping up to a sum of 10,000 in real life situations. • In pairs or groups, learners are guided to research using the available digital	

			devices or print materials how to estimate the sum by rounding off numbers to be added to the nearest ten in different situations. • In purposive groups, learners are guided to discuss how to estimate the sum by rounding off numbers to be added to the nearest ten in different situations. • In pairs or groups, learners are guided to create patterns in charts involving addition up to a sum of 10,000 and display them on the wall. • In pairs or groups, learners are guided to use any available resource to play games involving addition. • In pairs, learners are	

			guided to work out some given exercises then present in class. • In groups, learners are guided to buy and sell at classroom shop corners to practise addition and learn how addition is applied in their day to day life.	

Core Competencies to be developed:

- Communication and collaboration: observation and signing skills are enhanced as learners practice addition through buying and selling at the class shop corner.
- Creativity and Imagination**:** learners apply creativity and imagination when playing digital games involving two 4-digit numbers addition.

Values:

Respect: learners understand and appreciate others as they work in groups to discuss and work out the addition of two 4-digit numbers without regrouping.

Link to other learning areas

Learners relate signing terms and reading **word** problems for additional exercises involving formulating sentences that

require mathematical solutions to signing and reading in English.
Suggested Resources: Place value chart, Abacus, Relevant digital devices, flash cards, Course books, Signs dictionary

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
	1.3 SUBTRACTION (8 Lessons)	By the end of the sub strand, the learner should be able to: a) sign terms related to subtraction, b) subtract up to 4-digit numbers with regrouping in real life situations, c) estimate difference by rounding off numbers to the nearest ten in real life situations, d) create patterns involving subtraction from up to 10,000, e) use digital devices for learning subtractions, f) appreciate application of subtraction of numbers in real life situations.	• In pairs or groups, learners are to be guided to fingerspell, sign and subtract and present numbers up to 4-digit numbers without regrouping in real life situations. • In groups, learners in class are to be guided to watch captioned or signed videos on subtraction of numbers up to 4 digits and write down the steps. • In pairs or groups or individually learners are to be guided to subtract up to 4- digit numbers with	1. Why do you use subtraction in real life? 2. How do you create patterns involving subtraction?

			regrouping using number cards. • In pairs or groups, learners are guided to estimate and work out the difference by rounding off the numbers to the nearest ten in real life situations. • In pairs or groups, learners are guided to discuss, create and display patterns involving subtraction of numbers from up to 10,000. • In pairs or groups, learners are guided to play games involving subtraction using digital devices or other resources available, then work out the	

			exercises given in the text.	

Core Competencies to be developed:

- Creativity and imagination: use creativity in work contexts as they create patterns involving subtraction of numbers from up to 10,000.
- Digital literacy: play digital games as learners- in pairs or groups play games involving subtraction using digital devices or other resources.

Values:

- Respect: enhanced as learners in groups discuss subtraction of numbers up to 4-digit numbers without regrouping using number cards.
- Responsibility**:** cares for own property and that of others as learners work in groups using digital devices and other learning materials.

Pertinent and Contemporary Issues (PCIs):

- Life skills and human population: problem solving as learners apply subtraction of numbers in real life situations.

Link to other learning areas:

Learners relate display of patterns in pairs or groups as they discuss, create and display patterns involving subtraction of numbers from up to 10,000 to creation of patterns in **Creative Arts.**

Suggested Resources:

Place value chart, Abacus, relevant digital devices, relevant digital devices etc.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
	1.4 MULTIPLICATION (8 Lessons)	By the end of the sub strand, the learner with Hearing Impairment should be able to; a) sign terms related to multiplication, b) work out he multiplication of a 2 - digit number by a multiple of 10, c) work out the multiplication up to a two-digit number by two-digit number without regrouping d) work out the multiplication up to a two-digit number by two-digit number with regrouping	● In pairs, learners are guided to identify fingerspell, sign and write terms related to multiplication (Such as Product, multiply, multiple, regrouping). ● In groups or pairs, learners are guided to observe signed or captioned video demonstrations on how to multiply 2 digit numbers by multiples of 10 or by using number cards.	1. How do we use multiplication in real life? 2. Why do we create patterns involving multiplication?

		e) estimate products by rounding of numbers to the nearest 10 f) create patterns involving multiplication with the overall product not exceeding 100 g) use digital devices and other resources for learning multiplication, h) appreciate application of multiplication of numbers in real life.	• Practice multiplying 2 digit numbers by multiples of 10 using number cards. • In purposive groups, learners are guided to multiply two-digit numbers by two-digit numbers without regrouping using counters and prepare a multiplication table on a chart. • In pairs or groups, learners are guided to refer to the print texts provided to work out and present multiplication up	

			to a two-digit with regrouping. ● In pairs or groups, learners are to be guided to estimate and work out a product by rounding off numbers to the nearest ten with product not exceeding 1,000. ● In pairs or groups, learners are guided to create and display patterns involving multiplication with product not exceeding 100 prepare charts using local materials. ● In pairs or groups Learners are guided to play games using any	

			available resource e.g. printed text or digital games on multiplication. ● In groups or in pairs learners are guided to discuss and make on a chart a simplified multiplication table of up to 7 x 7, then display for peer review.	

Core Competencies to be developed:

- Communication and collaboration: observing and signing skills as learners in pairs or groups fingerspell, sign and write terms related to multiplication. such as Product, multiply, multiple, regrouping
- Creativity and imagination**:** use creativity in work context- as learners create patterns involving multiplication with product not exceeding 100 and prepare charts to display their patterns.

Values:

- Unity and respect: is enhanced as learners in pairs or groups estimate and work out answers by rounding off numbers to the nearest ten with product not exceeding 1,000.
- Responsibility: learners take care of digital devices and other learning material.

Pertinent and Contemporary Issues (PCIs): ● Life skills and human sexuality: problem solving- enhanced as learners apply use of multiplication of numbers in real life situations to calculate population size and gender.
Link to other learning areas Learner relates fingerspelling, signing and writing terms related to multiplication to fingerspelling, signing and writing in English
Suggested Learning Resources: Multiplication table, Counters, Relevant digital devices, Realia, Signs dictionary, Charts, Flash cards

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
	1.5 DIVISION (8 Lessons)	By the end of the sub strand, the learner should be able to: a) Sign terms used in division b) Divide up to a two digit number by a one digit number without remainder c) Divide up to a two digit number by a one digit number with remainder, d) Relate multiplication of numbers to division of same numbers, e) Use division as sharing in day to day activities, f) use IT devices for learning and leisure.	• In pairs, learners are guided to fingerspell, sign and write words related to division such as divide, remainder and multiple. • In groups, learners are guided to refer to print texts or charts available as they discuss and carry out division of up to a two digit number by a one digit number without remainder using number cards. • In groups, learners are guided to observe teachers' demonstration or watch signed or captioned video on steps in multiplication, and then write down the steps on division. • In groups, learners are guided to discuss and practice division using counters or any other realia available.	1. Why do you use division in real life?

			● In groups or pairs, are guided to carry out division of up to a two-digit number by a one-digit number with remainder ● In groups learners are guided to prepare division charts, for display and peer review. ● In groups, learners are guided to discuss and present on how to carry out division and multiplication of the same numbers to establish the relationship between multiplication and division, referring to the multiplication chart. ● In groups, learners are guided to write the relationship between division and multiplication on the charts then be displayed on the walls for peer review. In groups, learners are guided to participate in a multiplication/division game, using any available resource. ● In groups, the learners are guided to share some readily	

			available items as a practice to the application of division such as oranges, beans, books, pens. ● In pairs or groups, learners are guided to play games involving division using print texts or digital devices.	

Core Competencies to be developed:

● Communication and collaboration: observing and signing skills enhanced as learners in groups discuss and carry out division of up to a 2-digit number by a 1-digit number without remainder using number cards.

Digital literacy**:** play digital game**;** learners in groups or in pairs play games involving division using digital devices.

Values:

● Respect: as learners in groups carry out division and multiplication of same numbers to establish relationship between multiplication and division. Discuss and share their results with other groups.

● Responsibility**:** enhanced as learners observe safety when using digital devices.

Pertinent and Contemporary Issues (PCIs):

Peer education and mentorship: enhanced as learners help each other to carry out division and multiplication of same numbers to establish relationship between multiplication and division. Discuss and share their results with other groups.

Link to other learning areas

Learner relates the concept of division to the concept of mixtures in Science and Technology.

Suggested Learning Resources:

Multiplication table, counters, relevant digital devices, signs dictionary, realia

Strand	Sub Strand	Specific Learning Outcome	Suggested Learning Experiences	Suggested Key Inquiry Questions
	1.6 FRACTIONS (6 Lessons)	By the end of the sub strand, the learner should be able to: a) sign words related to fractions, b) represent a fraction with denominators not exceeding 12 as part of a whole and as part of a group, c) Name the types of fractions in real life, d) convert improper fractions to mixed fractions in different situations, e) convert mixed fractions to improper fractions in different contexts,	• In groups or pairs, learners are guided to identify, fingerspell, sign and write words related to fractions such as fractions. numerator, denominator. • In groups or pairs, learners in class are guided to observe the teacher's demonstration or watch a signed/captioned video/simulation on representation of fraction. • In pairs or groups, learners are guided to represent fractions as part of a whole and as	1. How do you use fractions in real life? 2. How can you represent fractions?

		f) use digital devices and other resources for learning more on fractions, g) appreciate application of fractions in real life situations.	part of a group using concrete objects. • In pairs or groups, learners are guided to write and present on fractions as part of a whole or part of a group. • In groups, learners are guided to refer to the available print texts to research, discuss and present on the types of fractions. • In groups, learners are guided to use any available digital devices or print resources to research on the types of fractions then present. • In pairs or groups, learners are guided to represent fractions as part of a whole or part	

			of a group using cut outs, counters or clock face. • In pairs, learners are guided to represent proper, improper and mixed fractions as part of a whole or as part of a group using paper cut outs or counters. • In pairs or groups, learners are guided to use any available material to research and present on how to convert improper fractions to mixed fractions. • In pairs or groups, learners are guided to convert mixed fractions to improper fractions. • Individually, learners are guided to practise inter-	

			conversion of fractions, then peer check their work. • In pairs or groups, learners to be guided to play games involving fractions using or referring to digital devices or print resources available.	

Core Competencies to be developed:

- Self-efficacy: Encourage others to keep trying too when learners work in pairs/groups writing fractions to represent as part of a whole or part of a group.
- Critical thinking and problem solving: use any available material to research and present on how to convert improper fractions to mixed fractions.

Values:

- Responsibility: learners represent fractions as part of a whole and as part of a group using concrete objects such as counters and takes care of the objects and other learning materials.
- Respect: learners in groups discuss and appreciate diverse opinions on the top (numerator) and bottom (denominator) numbers in a fraction and share with other groups.

Pertinent and Contemporary Issues (PCIs):

- Peer education and mentorship: as learners help each other to convert improper fractions to mixed fractions.
- Safety and security: as learners use sharp objects to make paper cut outs to represent proper, improper and mixed fractions as part of a whole or as part of a group.

Link to other learning areas: The learner is able to relate fractions as part of a whole or part of a group using cut outs, counters or clock face to mixtures in Science and Technology
Suggested Learning Resources: Equivalent fraction board, Circular and rectangular cut outs, counters, relevant digital devices, realia

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
	1.7 DECIMALS **(10 Lessons)**	By the end of the sub strand, the learner should be able to: a) Sign words related to decimals. b) represent decimals using decimal notation in given situations, c) write the place value of decimals up to hundredths in real life, d) order decimals up to hundredths in computation e) use digital devices for learning about decimals, f) appreciate use of decimals in real life situations.	• In pairs, learners are guided to identify, fingerspell, sign and write words related to decimals. • In groups or pairs, learners are guided to observe the teacher demonstrate or watch a signed or captioned video on decimals then write down their observations. • In groups, learners are guided to observe the teacher's demonstration or watch a signed or captioned video on representation of decimals using decimal notation then practise the same. • In groups, learners are guided to order decimals up to hundredths on a chart	How can you use decimals in real life situations?

			then mount them on the wall for presentation and peer review. • In groups or pairs, learners are guided to discuss and make notes on where tenths and hundredths are used in real life situations. • In pairs or groups, learners are guided to represent decimals using place value charts and reuse charts for other activities. • In groups, learners are guided to research using digital/print media on how to represent tenths and hundredths using place value charts then present their findings in class. • In groups, learners are guided to discuss and present on representation of tenths and hundredths using place	

			value charts. • In pairs, learners are guided to observe teachers' demonstration on ordering decimals in ascending and descending order then work out some given questions. • In groups or pairs, learners are guided to participate in decimal computation speed games. • In groups, learners are guided to play games involving decimals using digital devices or print materials.	
Core Competencies to be developed: • Learning to learn: learners work independently to write tenths and hundredths using decimal notation on a place value chart.				
Values: • Unity: learners in pairs or groups represent tenths and hundredths using place value charts.				
Pertinent and Contemporary Issues (PCIs): • Environmental awareness: Learners in pairs/groups represent decimals using place value charts and reuse charts for other activities.				

Link to other learning areas The learner is able to relate tenths and hundredths to the concept of mixtures in Science and Technology. The Learner is able to relate safe use and handling of learning resources in decimals to safety in Science and Technology.
Suggested Learning Resources: 100 square grid, rectangular paper strips, place value charts, number cards, relevant digital devices

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
1.0 NUMBERS	**1.8 USE OF LETTERS (6 Lessons)**	By the end of the sub strand, should be able to: a) sign terms related to algebraic expressions, b) form simple algebraic expressions to represent real life situations, c) simplify algebraic expressions representing real life situations, d) use signed captioned video and other resources to learn more on the use of letters to represent information e) appreciate the use of algebraic expressions.	• In groups or pairs, learners are guided to identify fingerspell, sign and write the terms related to algebraic expressions. • In groups or pairs, learners are guided to observe the teacher demonstrating or observe a signed or captioned video on the formation of simple algebraic expressions using letters and note down key points. • In groups, learners are guided to refer to print or digital media or digital devices to research	How can you simplify algebraic expressions?

			more formation of simple algebraic expressions, then attempt some given questions. • In pairs or groups or individually, learners are guided to form algebraic expressions to represent real life situations. • In pairs or individually, learners are guided to simplify given algebraic expressions representing real life situations. • In pairs or groups or individually, learners are guided to play digital games involving algebraic expressions.	
Core competencies to be developed: • Learning to learn: as learners represent the information using letters. • Communication and collaboration: as learners form algebraic expressions to represent real life situations in algebraic form.				

Values: • Respect: as learners in pairs or groups simplify algebraic expressions representing real life situations
Pertinent and Contemporary Issues (PCIs): • Social cohesion: as learners work in pairs/groups to simplify algebraic expressions
Link to other learning areas The learner is able to relate the concept of letters to the skills of reading and writing in languages.
Suggested Learning Resources: ● Charts, print texts, relevant digital devices, course books

Assessment Rubrics

Level / Indicator	Exceeds Expectation	Meets Expectation	Approaches Expectation	Below Expectation
Ability to sign terms related to numbers and operations on numbers.	Signs terms related numbers and operations on numbers with accuracy and consistency, demonstrating a deeper understanding.	Signs terms related to numbers and operations on numbers accurately and fluently.	Signs terms related to numbers and operations on numbers, but with occasional errors and pauses.	Signs terms related to numbers and operations on numbers with frequent errors that significantly impact on the meaning of the terms.
Ability to order and round off numbers up to 1,000 to the nearest ten	Rounds off numbers up to 1,000 to the nearest tens accurately and consistently with clear explanation.	Rounds off numbers up to 1,000 to the nearest tens accurately with precision.	Rounds off numbers up to 1,000 to the nearest tens inconsistently with minimal errors	Rounds off numbers up to 1,000 to the nearest tens with noticeable major errors
Ability estimate sum by rounding off numbers to the nearest tens in different situations.	Estimate sum by rounding off numbers to the nearest tens	Estimate sum by rounding off numbers to the nearest tens	Estimate sum by rounding off numbers to the nearest tens	Estimate sum by rounding off numbers to the nearest tens

Ability to create patterns involving addition, subtraction and multiplication.	Creates unique and innovative patterns involving subtraction from up to 10,000 and can explain	Creates accurate patterns involving subtraction from up to 10,000.	Creates simple patterns involving subtraction from up to 10,000 with minimal errors.	Creates patterns involving subtraction from up to 10,000 with difficulty under guidance.
Ability to multiply up to a two-digit number by two-digit number with and without regrouping,	multiplies up to a two-digit number by two-digit number with and without regrouping accurately and consistently with clear explanation of grouping and regrouping process	multiplies up to a two-digit number by two-digit number with and without regrouping accurately and with precision in different contexts.	multiplies up to a two-digit number by two-digit number with and without regrouping with occasional errors	multiplies up to a two-digit number by two-digit number with and without regrouping with frequent noticeable errors.
Ability to divide up to a two digit number by a one digit number with and without remainder.	Divides up to a two digit number by a one digit number without remainder accurately and thoroughly.	Divides up to a two digit number by a one digit number without remainder accurately	Divides up to a two digit number by a one digit number without remainder accurately	Divides up to a one digit number by a one digit number without remainder correctly
Ability to identify different types of fractions.	Identifies types of fractions correctly and systematically	Identifies types of fractions correctly with consistency.	Identifies types of fractions with occasional errors.	Identifies fractions incorrectly.
Ability to convert improper fractions to mixed fractions and	Converts improper fractions to mixed fractions and mixed	Converts improper fractions to mixed fractions and mixed	Converts improper fractions to mixed fractions or mixed	Converts improper fractions to mixed fractions with frequent

mixed fractions to improper fractions.	fractions to improper fractions accurately with clear explanation on the conversion process.	fractions to improper fractions accurately and consistently.	fractions to improper fractions with occasional errors especially on large fractions.	errors.
Ability to identify a tenth and a hundredth in a decimal number.	Identifies a tenth and a hundredth in a decimal number accurately methodically.	Identifies a tenth and a hundredth in a decimal number accurately.	Identifies a tenth or a hundredth in a decimal number accurately.	Identifies a tenth in a decimal number inaccurately.
Ability to represent information using letters.	Represents information using letters by applying advanced algebraic concepts and accurately.	Represents information using letters.	Represents information using letters with minimal errors.	Represents information using letters incorrectly and inconsistently.
Ability to form simple expressions to represent real life situations problems	forms simple expressions to represent real life situations problem creatively with consistency	forms simple expressions to represent real life situations problems correctly	forms simple expressions to represent real life situations problems with minimal errors	forms incomplete simple expressions to represent real life situations problems
Ability to Simplify algebraic expressions.	Simplifies algebraic expressions by providing a deep understanding of algebraic principles.	Simplifies algebraic expressions.	Simplifies algebraic expressions with minimal difficulties.	Simplifies algebraic expressions incorrectly and inconsistently.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
2.0 MEASUREMENT	**2.1 LENGTH** **(10 Lessons)**	By the end of the sub strand, the learner should be able to: a) sign the terms related to length, b) measure length in centimetres in real life situations, c) estimate and measure length in centimetres in real life situations, d) establish the relationship between metres and centimetres practically, e) convert metres to centimetres and	• In groups or pairs, learners are guided to identify fingerspell, sign and write terms related to length, • In pairs or groups, learners are guided to observe the teacher demonstrate or watch captioned video/animations on length, then note down key points. • In pairs, learners are guided to identify 'Centimetre' on a metre ruler, write its symbol and mark out lengths of 1 centimetre on the same ruler. • In groups, learners are guided to identify and mark lengths of 1 centimetre on a 30 centimetre ruler and draw this in their exercise books. • In pairs or groups, learners	1. How can you measure distance? 2. Why do we measure distance in real life?

		centimetres to metres in real life situation, f) work out perimeter of plane figures in different contexts, g) work out addition involving length in metres and centimetres in real life situations, h) work out subtraction involving length in metres and centimetres in real life situations, i) work out multiplication involving metres and centimetres in real life situations,	are guided to measure and record the length of some given objects in the school using arbitrary units, • In pairs or groups, learners are guided to measure and record the length of a given object in centimetres using a metre ruler or a tape measure. • In purposive groups or individually, learners are guided to estimate and record the length of a given object in centimetres. • In pairs or groups, learners are guided to measure and record actual length of the estimated object in centimetres. • In groups or pairs, learners are guided to watch a simulation or pictures on the use of a metre rule in	

		j) work out division involving metres and centimetres in real life situations, k) use digital devices and other resources for learning about length, l) appreciate use of metres and centimetres in measuring distance in real life.	measuring measure length and write down key points. • In groups or pairs, learners are guided to measure and record length of different objects using the metre rule. • In groups, learners are guided to measure the dimensions of school football and netball pitches and input the measurements in the drawings of the same fields • In pairs or groups, learners are guided to measure the length of objects in classrooms in metres and centimetres and establish the relationship between the units. • In pairs or groups, learners are guided to use the relationship between centimetres and metres for inter-conversion and do a class presentation.	

			• In pairs or groups, learners are guided to discuss, write and present on the inter-conversion of metres into centimetres using whole numbers/decimals. • In pairs, learners are guided to refer to print texts or a video on the calculation of perimeter of given plane figures and write down the steps. • In pairs or groups, learners are guided to discuss work out perimeter of plane figures • In pairs or groups are guided to work out addition and subtraction involving metres and centimetres • In groups, learners are guided to work out and present addition and subtractions involving centimetres and metres	

			• In pairs or groups, learners are guided to work out and then present on multiplication involving metres and centimetres. • In groups, learners are guided to work out on a chart, the division involving metres and centimetres, then conduct peer review. • In pairs or groups, learners are guided to play games (print or digital) involving length. • In groups, learners are guided to visit a firm or business units where the knowledge of measurement is applied.	
Core Competencies to be developed: • Learning to learning: as learners' groups to measure length of objects in classrooms in metres and centimetres and establish the relationship between the units. • Critical thinking and problem solving: Learners in pairs or groups to work out perimeter of plane figures in different contexts.				
Values:				

- Responsibility as learners measure the length of a given object in centimetres using a metre ruler or a tape measure, without breaking them.
- Unity: as learners work together in groups in harmony

Pertinent and Contemporary Issues (PCIs):

- Self-awareness: as learners measure the length of a given object in centimetres using a metre ruler or a tape measure.
- Peer Education**:** Learners enhance peer education and mentorship as they measure the length of a given object in centimetres using a metre ruler or a tape measure.

Link to other learning areas:

Learners through visits to a farm or business units relates the of knowledge of measurement to **Agriculture and Nutrition**

Suggested Learning Resources:

- Metre rule, 30 cm rulers, 1 metre sticks, tape measure, relevant digital devices

Suggested Modes of Assessment: Signed work, presentations, written exercises and observation

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
	2.2 AREA (8 Lessons)	By the end of the sub strand, the learner should be able to; a) sign terms related to area, b) compare area of two surfaces directly c) calculate area of squares and rectangles by counting unit squares, d) calculate area of squares and rectangles as a product of number of rows and columns e) use digital devices for learning more on area, f) appreciate use of rows and columns in	● In groups or pairs, learners are guided to identify, fingerspell, sign and write terms related to area. ● In groups or pairs, learners are guided to observe teacher's demonstration or watch a signed/captioned video on comparing area of two surfaces directly by placing one surface on the other, then note down their observations ● In groups or pairs, are guided to observe the teacher's demonstration or watch a captioned/signed video or animation on how to calculate area of surface by using square cut outs, then	How can you work out area of different surfaces?

		calculating the area of squares and rectangles in real life situations.	write down key points on a chart for peer review. ● In groups, learners are guided to calculate the area of square and rectangles by use of the squares in their exercise books, then do a class presentation ● In pairs or groups, learners are guided to establish and write on charts the fact that the area of a rectangle or a square is the same as the number of rows multiplied by the number of columns. ● In pairs or groups, learners are guided to work out on the cards provided the area of drawn squares and rectangles by multiplying number of rows by number of columns. This to be filed	

			in their portfolio. ● In groups, learners are guided to search for digital/print games involving the calculation of area of rectangles and squares. ● In groups, learners are guided to research and write on the application of surface area in day to day life.	

Core Competencies to be developed:

- Critical thinking and problem solving: as learners' groups to work out area of squares and rectangles by multiplying number of rows by number of columns, for example in tiled or paved floors.
- Digital literacy: as learners in pairs or groups play games involving area of rectangles and squares using digital devices and other resources.
- Learning to learn: as learners count the number of unit square cut outs used to cover the surface.

Values:

- Respect, love and unity: as learners establish that the area of a rectangle or a square is the same as the number of rows multiplied by the number of columns.
- Integrity as learners**:** count the number of unit square cut outs used to cover the surface.

Pertinent and Contemporary Issues (PCIs):

- Social cohesion: as learners establish that the area of a rectangle or a square is the same as the number of rows multiplied by the number of columns.
- Environmental education: as learners use different unit square cut outs to cover a given surface.

Link to other learning areas

The learner is able to relate counting of the number of unit square cut-outs prepared from locally available resources to properties of matter in Science and Technology.

Suggested Learning Resources:

- square cut outs, paper cut outs, print texts, charts, relevant digital devices,

Suggested Modes of Assessment:

Signed work, presentations, written exercises and observation

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
	2.3 VOLUME **(6 Lessons)**	By the end of the sub strand, the learner should be able to: a) Sign terms related to volume, b) pile objects into stacks of cubes and cuboids in real life situations, c) Work out volume of cuboids by piling blocks to form a cuboid, d) calculate the volume of cubes by piling blocks to form a cube, e) use digital devices other resources for learning about volume, f) appreciate the use of piling method in working out	● In pairs, learners are guided to identify, fingerspell, sign and write the terms related to volume. ● In groups, learners are guided to observe the teacher's demonstration or watch a captioned or signed video on the concept of volume and note down key points. ● In groups or pairs, learners are guided to stack objects to form cubes and cuboids of different sizes. ● In groups, learners are	How can you work out the volume of cubes and cuboids?

		volume in real life.	guided to observe the teacher demonstrate or watch a captioned/signed video on calculation of volume by counting cubes and cuboids stacked. ● In pairs or groups, learners are guided to take turns and count the number of objects in the pile that makes a cuboid to determine the volume. ● In groups, learners are guided to use or refer to printed text or digital devices available to play games on calculation of volume by counting the number of cubes. ● In pairs or groups, learners are guided to count the number of objects in the pile that	

			makes a cube to determine the volume ● In pairs or groups or individually, learners are guided to use digital devices or other resources available to safely play games involving stacking blocks to form cubes and cuboids.	

Core Competencies to be developed:

- Learning to learn: learners practise stacking objects or blocks to form cubes and cuboids of different sizes.
- Critical thinking and problem solving: as learners count the number of objects in the pile that makes a cube to determine the volume.

Values:

- Unity: learners discuss and carefully arrange blocks or objects on top of each other into cuboid and cube shape.

Pertinent and Contemporary Issues (PCIs):

- Safety: learners safely play games involving stacking blocks to form cubes and cuboids.

Link to other learning areas

The learner is able to relate arranging blocks or objects on top of each other into cuboid and cube shapes to the Construction of food preservation equipment in Agriculture and Nutrition.

Suggested Learning Resources:

- Cubes, cuboids, print texts, relevant digital devices

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
	2.4 CAPACITY **(6 Lessons)**	By the end of the sub strand, the learner should be able to: a) sign terms related to capacity, b) measure capacity in litres in real life situations, c) measure capacity in ½ litres in real life situations, d) measure capacity in ¼ litres in real life situations, e) add and subtract capacity involving litres in real life situations, f) use digital devices and other resources for learning about	● In groups or pairs, learners are guided to identify, fingerspell, sign and write the terms related to capacity. ● In groups or pairs, learners are guided to observe the teacher's demonstration or watch a captioned or signed video/animation on capacity, then note down their observations. ● In groups or pairs, learners are guided to measure and record the capacity of some given containers using a 1 litre container in real life situations. ● In pairs or groups or individually, learners are guided to make ½ litre containers from locally available materials	How can you measure capacity in real life situations?

		volume and for enjoyment, g) appreciate use of the litre as a unit of measuring capacity in real life situations.	through filling and emptying the container with substances such as water or sand using a 1 litre container. ● In groups or pairs, learners are guided to discuss on how to make ¼ litre container and write down their steps ● In groups or pairs, learners are guided to watch a captioned/signed video on how to make a ¼ litre container and sketch. ● In pairs or groups, learners are guided to make ¼ litre containers using locally available materials. ● In pairs or groups, learners are guided to use ½ litre and ¼ litre containers to measure capacity of other containers. ● In pairs, learners are guided to use digital devices or print	

			media to research addition of capacity then note down their learnings. ● In groups, learners are guided to discuss and make presentations on adding capacity involving litres in real life situations. ● In groups, learners are guided to discuss and subtract capacity involving litres in real life situations, then make presentations. ● In pairs or groups, learners are guided to use print or digital devices to search for the available to play games involving capacity using containers of different capacities. ● In groups, learners are guided by their teacher to visit a premise or enterprise where the concept of addition of capacity	

			is applied, then note down their findings	

Core Competencies to be developed:

- Learning to learn: as learners in groups make ½ litre containers from locally available materials through filling and emptying the container with substances such as water or sand using a 1 litre container.
- Self-efficacy: as learners show confidence in measuring capacity of ½ litre and ¼ litre containers.

Values

- Responsibility: as learners make ¼ litre containers from locally available materials through filling and emptying the container with substances such as water or sand using a 1 litre container.

Pertinent and Contemporary Issues (PCIs):

- Safety: learners prepare ½ litre and ¼ litre containers while observing precautionary measures.
- Environmental education: learners make ½ litre containers from locally available materials to enhance environmental education.

Link to other subjects learning areas

The learner is able to relate practical activities involving measurement of liquids to properties of matter in Science and Technology.

Suggested Learning Resources:

- 1 litre containers, containers of different sizes, water, sand, soil, relevant digital devices

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
	2.5 MASS **(6 Lessons)**	By the end of the sub strand, the learner should be able to: a) sign the terms related to measurement of mass b) use ½ kg and ¼ kg masses to measure masses of different objects practically, c) add mass involving kilograms in real life situations, d) subtract mass involving kilograms in real life situations, e) use digital devices for learning and enjoyment, f) appreciate measuring mass of different objects.	● In groups or pairs, learners are guided to identify, fingerspell, sign and write terms related to measurement of mass. ● In groups, learners are guided to observe the teacher's demonstration or watch a captioned/signed video about mass and make short notes. ● Learners in pairs or groups are guided to use 1-kilogram masses to measure and record masses of given objects using a beam balance.	How can you measure mass in kg?

			• In pairs or groups, learners are guided to make a ½ kg mass and use it to measure and record mass of given objects using a beam balance. • In groups, learners are guided to use digital or print media to research on how to make ¼ kg masses then note down the steps. • In pairs or groups, learners are guided to make a ¼ kg mass and use it to measure and record mass of given objects using a beam balance, weighing scale or an electronic balance. • In pairs or groups, learners are guided to refer to print texts or digital media to discuss addition of mass involving kilograms (kg) in	

			real life situations and work out examples on a chart then present. ● In pairs or groups, learners are to be guided to subtract mass involving kilograms (kg), then do class presentation ● In groups, learners are guided to play speed games involving addition and subtraction of masses. ● In pairs or groups, learners are guided to refer/use print or digital devices and play digital games involving mass.	

Core Competencies to be developed

- Digital literacy: As learners make a ¼ kg mass and use it to measure mass of given objects using a beam balance and an electronic balance.
- Critical thinking and problem solving: as learners add mass involving kilograms (kg).

Values

- Integrity: as learners work in groups/pairs make a ½ kg mass and use it to measure mass of given objects using a beam balance.

Pertinent and Contemporary Issues (PCIs):

- Social cohesion: as learners work in pairs/groups in measuring mass in ½ kg and ¼ kg using a beam balance
- Safety: as learners use one-kilogram mass to measure masses of objects using a beam balance.

Link to other learning areas

Learners in groups relate playing speed games involving addition and subtraction of masses to games in Social Studies

Suggested Learning Resources:

- 1kg mass, Realia -soil or sand, manual/electronic weighing machine, beam balance, relevant digital devices, course books

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
	2.6 TIME **(10 Lessons)**	By the end of the sub strand, the learner be able to: a) sign the terms related to time, b) tell time in a.m. and p.m. in real life situations, c) estimate time using a.m. and p.m. in real life situations, d) convert units of time in real life situations, e) record time durations in hours and minutes in real life situations, f) work out time duration in real life situations, g) use digital clock to tell	● Learners are guided to identify, fingerspell, sign and write terms related to time ● In groups or pairs, learners are guided to observe the teacher demonstrate or watch a captioned/signed video about time and write down key points. ● In pairs or groups, learners are guided to use print resources or digital devices to research and on telling time in a.m. and p.m. ● In groups, learners are guided to play digital or other games on telling time in a.m. and p.m. ● In class, learners are guided to observe a demonstration on reading and writing time shown on the screen/on paper/board. ● In pairs or groups, learners are	1. How can you tell time? 2. How can you find out time taken to do an activity?

		and record time of different activities. h) appreciate time in day to day activities.	guided to estimate and write time of the day using the shadow of a building or a tree that is in a convenient location. ● In pairs or groups, learners are guided to convert hours to minutes and minutes to hours in real life situations, then work out some given exercises. ● In pairs or groups, learners are guided to convert hours to days and days to hours in real life situations, then work on some given exercises. ● In pairs or groups, learners are guided to convert days to weeks and weeks to days in real life situations, then work on some given exercises. ● In pairs or groups, learners are guided to measure and record duration of events in hours and minutes using digital clocks,	

			analogue clocks, or any other available material. ● In groups, learners are guided to discuss and work out additions involving units of time in real life situations, then present. ● In pairs or groups, learners are guided to work out subtraction involving units of time in real life situations, then work our given sample questions on the chart for display. ● In pairs or in groups, learners are guided to discuss, tell and record time using electronic or model clocks. ● On cards provided, each learner to write down the conversion of minutes to hours vice versa, and include this in their portfolio	
Core Competencies to be developed: ● Creativity and Imagination: learners estimate time using shadows of objects within the environment. ● Learning to learn: as learners convert hours to days and days to hours.				

Digital literacy: as learners in pairs or in groups discuss, tell and record time using electronic: clock.

Values:

- Integrity as learners measure and record duration of events in hours and minutes using digital or analogue clocks.

Pertinent and Contemporary Issues (PCIs):

- Social cohesion: as learners work together in groups to convert hours to days and days to hours.
- Sports and games as: learners record duration of events in hours and minutes using digital and analogue clocks.

Link to other learning areas

- Science and technology: learners Relate telling and record time using electronic or model clocks measurement and recording in Science and Technology.
- English and other languages: As learners participate in discussions on how to estimate time using shadows of objects within the environment.

Suggested Learning Resources:

Analogue and digital clocks, digital watches, am /pm chart, print outs, relevant digital devices

Suggested Modes Assessment: Signed work, presentations, written exercises and observation

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
	2.7 MONEY (8 Lessons)	By the end of the sub strand, the learner should be able to: a) Sign the terms relating to money b) state the units of money c) convert shillings into cents and cents into shillings in different contexts, d) prepare a shopping list of three items to buy. e) work out total cost of items in the shopping list not more ten thousand shillings f) model buying items as a shopping activity in school .	● In groups or pairs, learners are guided to identify, fingerspell, sign and write the terms relating to money. ● In groups or pairs, learners are guided to discuss and write about units of money they know ● In pairs or groups, learners are guided to observe the teacher demonstrating or watch a captioned/signed video on money and its units, then write key points. ● In groups, learners are given pictures and realia of different units of money to manipulate and write their values. ● In pairs or groups, learners	How can you save money?

		g) use digital devices or other resources for recording shopping activities. h) appreciate the use of money in real life.	are guided to convert shillings into cents and cents into shillings using real/ imitation money in different contexts. ● In pairs or groups, learners are guided to observe the teacher make a sample shopping list or watch a signed/captioned video on how to make a shopping list, then write down the steps. ● In pairs or groups, learners are guided on how to come up with a shopping list of items that they may require at school, then file this in their portfolio ● In groups or individually, learners are guided to calculate the total cost of items in the shopping list.	

			• In groups, learners are guided to develop a class or school model shop and role play shopping activities as buyers and shopkeepers. • Take video clips of their groups as they role play shopping activities.	

Core Competencies to be developed

- Communication and collaboration: as learners in groups discuss and convert shillings into cents and cents into shillings using real/ imitation money
- Self-efficacy as learners: calculates the total cost of items in the shopping list.
- Creativity and critical thinking: as learners come up with a class or school model shop and role play shopping activities as buyers and shopkeepers.

Values

- Integrity: Learners in groups/individually correctly calculate the total cost of items in the shopping list.
- Patriotism: As learners display citizenship when converting shillings into cents and cents into shillings which is Kenyan currency.

Pertinent and Contemporary Issues (PCIs):

- Patriotism as learners: convert shillings into cents and cents into shillings which is Kenyan currency.
- Financial literacy as learners: calculate the total cost of items in the shopping list.

Link to other learning: The learner is able to relate shopping list for food items to the concept of Resources and Economic Activities in Social Studies.
Suggested Learning Resources: ● Real or imitation money, price list, print outs, relevant digital devices.

Assessment rubrics

Level / Indicator	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to sign terms related to position and direction	Signs the terms related to position and direction correctly, exhibiting remarkable articulation of sign terms.	Signs terms related to position and direction accurately and effectively	Signs terms related to position and direction but there is evidence of minimal inaccuracies.	Signs terms related to position and direction but encounters notable challenges
Ability to Estimate and measure length in centimetres.	Estimates and measures length in centimetres accurately and creatively by selecting an appropriate unit of measurement	Estimates and measures length in centimetres accurately by choosing appropriate units.	Estimates and measures some length in centimetres with minimal errors	Estimate and measure length in centimetres with major errors.
Ability to calculate area of squares and rectangles as product of number of rows and columns.	Calculates area of squares and rectangles as product of number of rows and columns correctly and creatively providing clear and detailed explanation	Calculates area of squares and rectangles as product of number of rows and columns correctly using appropriate formulas	Calculates areas of squares and rectangles as a product of the number of rows and columns with minimal errors	Calculates some areas of squares and rectangles as a product of the number of rows with major errors.

Ability to work out volume of cubes and cuboids by piling blocks.	Works out volume of cubes and cuboids by piling blocks correctly and creatively providing clear and detailed explanation.	Works out the volume of cubes and cuboids by piling blocks correctly.	Works out volume of cubes or cuboids by piling blocks with noticeable minor errors	Works out volume of cubes and cuboids by piling blocks with difficulty with major errors.
Ability to measure, add and subtract capacity in litres.	Measures, adds and subtracts capacity in litres accurately and systematically.	Measures, adds and subtracts capacity in litres accurately.	Measures or adds or subtracts capacity in litres with minimal errors.	Measures, adds and subtracts capacity in litres with difficulty resulting in significant errors.
Ability to measure, add and subtract mass of different objects in kilograms.	Measures, adds and subtracts mass of different objects in kilograms accurately and systematically.	Measures, adds and subtracts mass of different objects in kilograms accurately.	Measures or adds or subtracts mass of different objects in kilograms with minimal errors.	Measures, adds and subtracts mass of different objects in kilograms with difficulty and significant errors.
Ability to work out addition and subtraction involving units of time.	Works out addition and subtraction involving units of time accurately with consistency.	Works out addition and subtraction involving units of time accurately.	Works out addition or subtraction involving units of time with notable minor errors.	Works out addition and subtraction involving units of time with major difficulties.
Ability to work out the total cost of items in the shopping list	Works out total cost of items in the shopping list not more ten thousand	Works out the total cost of items in the shopping list not more	Works out some cost of items in the shopping list not	Works out total cost of items in the shopping list not

not more than ten thousand shillings.	shillings accurately with consistency	than ten thousand shillings accurately.	more ten thousand shillings with notable minor mistakes in change	more than ten thousand shillings with major inaccuracy.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
3.0 GEOMETRY	**3.1 POSITION AND DIRECTION** **(4 Lessons)**	By the end of the sub strand, the learner should be able to: a) sign terms related to position and direction b) identify a clockwise and an anti-clockwise turn in the environment, c) demonstrate a clockwise and an anti-clockwise turn in the environment, d) identify quarter, half and full turns direction in the	● In groups or pairs, learners are guided to observe a signed or captioned video to identify, fingerspell, sign and write terms related to position and direction ● In groups or pairs, learners are guided to make clockwise or anticlockwise turns in the environment. ● In groups, discuss and demonstrate a clockwise turn. ● In pairs, learners are guided to observe a demonstration of an anti-clockwise turn.	How can you change your position?

		environment, e) demonstrate a quarter turn, half turn and full turn direction in the environment, f) use digital devices or other resources to learn more on directions, g) appreciate use of position and direction in real life situations.	● In groups, learners are guided to safely make quarter, half and full turns in the surrounding area. ● In pairs or individually learners are guided through a demonstration of a quarter turn in both directions. ● Learner is guided to demonstrate a half turn from a point. ● Learner is guided to demonstrate a full turn from a point. ● In pairs learners are guided to play digital games involving position and direction.	

Core Competencies to be developed:

- Learning to learn: as learners make clockwise or anticlockwise turns in the environment.
- Self-efficacy: as learners individually demonstrate a half turn from a point.
- Digital literacy: is enhanced as learners observe a signed video to identify fingerspell and sign terms related to position and direction.

Values:

- Unity as learners in groups discuss in harmony as they demonstrate a clockwise turn.

Pertinent and Contemporary Issues (PCIs):

- Safety: Learners observe safety and precautions in groups while making quarter, half and full turns in the environment.

Link to other subjects:

The learner is able to relate making quarter, half and full turns in the surroundings to the Location, Position and size of Kenya in Social Studies.

Suggested Learning Resources:

- Digital devices, signs dictionary, clock face

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
	3.2 ANGLES **(4 Lessons)**	By the end of the sub strand, the learner should be able to: a) sign terms related to an angles b) identify angles from the objects in the environment, c) relate a turn to angles in real life situations, d) use IT devices for learning and enjoyment, e) appreciate use of angles in real life situations.	● In groups or pairs, learners are guided to identify, fingerspell, sign and write terms related to angles at a point in lines. ● In pairs, learners are guided to observe the teacher demonstrating or watch captioned/signed videos on angles made by 2 lines meeting at a point, then make drawings. ● In pairs or groups, learners are guided to discuss angles that are made by 2 lines that meet at a point using a chart with a different line. ● In pairs or groups or individually, learners are guided to explore and	How can you find angles in the environment?

			identify angles from the objects such as cubes, cuboids in the environment. ● In groups, learners are guided to use digital or print devices to research clockwise quarter turn and half turn in angles and draw and present their findings. ● In groups, learners are guided to discuss and make drawings on angular clockwise quarter and half turns, then display for peer review. ● In pairs or groups, learners are guided to search for games in digital devices or print texts and play them. ● Activity: on the plain sheets provided, learners in class are guided to draw quarter	

			and half turns in angles then file this in their portfolio.	

Core competencies to be developed

- Communication and collaboration: as learners in groups are guided to discuss and recognize angles that are made by 2 lines that meet at point using a chart with different lines.
- Learning to learn: as learners make clockwise quarter and half turns and relate the turns to angles.

Values

- **Responsibility:** as learners explore and identify angles from the objects such as cubes, cuboids in the environment.

Pertinent and Contemporary Issues (PCIs):

- Environmental education: as learners explore regular objects within their environment and measure their angles.

Link to other learning areas:
The learner is able to relate angles from objects such as cubes and cuboids in the environment to perspective in Creative Arts.

Suggested Learning Resources:

- Models of different angles, print outs, relevant digital devices

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
	3.3 PLANE FIGURES **(6 lessons)**	By the end of the sub strand, the learner should be able to: a) sign terms related to plane figures, b) identify objects taking the shape of rectangle, square, triangle, circle and oval in the environment, c) Draw the shapes of rectangles, squares, triangles, circles and ovals from objects in the environment d) identify lines of symmetry of different shapes e) make patterns	● In groups, learners are guided to identify, fingerspell, sign and write on terms related to plane figures. ● In pairs or groups, learners are guided to observe the teacher's demonstration/ watch a captioned/signed video common shape of some figures. ● In pairs or groups, learners are guided to name the shapes of models/drawings/pictures bearing different shapes provided, ● In pairs or groups, learners are guided to identify the shapes of common objects in the environment. ● In groups, learners are guided to discuss and sketch objects that bear shapes of rectangles, squares, triangles, circles and ovals in the	1. How can you identify plane figures? 2. How can you make patterns using shapes?

		using squares, rectangles and triangles. f) identify properties of plane figures in different situations g) use print texts, IT devices or any resource available for further learning and enjoyment, h) appreciate using shapes in real life situations.	environment. ● In pairs, learners are guided to draw the shapes of rectangles, squares, triangles, circles and ovals in their books. ● In groups, learners are guided to use digital/print media to be guided to research on the symmetry of different shapes then make sketches and present in class. ● In pairs or groups, learners are guided to discuss and fold the shapes into two equal parts and recognise the fold line as the line of symmetry. ● In groups, learners discuss and present on how many lines of symmetry can each shape possibly have, fold the shapes to confirm. ● In pairs or groups or individually, learners are guided to discuss and	

			make patterns using squares, rectangles and triangles. ● In groups, learners are guided to watch simulations or drawings on how to make patterns using squares, rectangles and triangles, then in groups make their own patterns. ● In pairs or groups, learners are guided to discuss and identify properties of a square practically. ● In groups, learners are guided to discuss and identify the properties of a rectangle practically. ● In groups, learners are guided to discuss and identify properties of a triangle practically. ● In groups or pairs, learners are guided to observe models provided or watch a captioned/signed video on the properties of rectangles, squares and triangles, then compare with their findings in the preceding	

			activities. ● In pairs or groups, learners are guided to use printed texts or IT devices to learn more about plane figures and making of patterns.	

Core competencies to be developed:

- Learning to learn: as learners discuss how many lines of symmetry can each plane shape possibly have and fold the shapes to confirm.
- Creativity and imagination**:** as learners make patterns using squares, rectangles and triangles.

Values:

- Unity and respect: as learners discuss and recognize shapes of rectangles, squares, triangles, circles and ovals from common objects in the environment.

Pertinent and Contemporary Issues (PCIs):

- Environmental education as sketch the shapes of rectangles, squares, triangles, circles and ovals from objects in the environment.
- Social cohesion: as learners work together in groups to identify properties of triangles, rectangles and squares practically.

Link to other learning areas
The learner is able to relate making patterns using squares, rectangles and triangles to perspective in Creative Arts.
Suggested Learning Resources: ● Model shapes/figure, print out texts, relevant digital devices, signs dictionary

Assessment Rubrics

Level **Indicator**	**Exceeds Expectations**	**Meets Expectations**	**Approaches Expectations**	**Below Expectations**
Sign the terms related to geometry, position and direction and plane figures.	Exhibits remarkable precision in signing terms related to geometry, position and direction and plane figures, showcasing an advanced understanding of sign vocabulary and execution of signs with remarkable clarity.	Signs terms related to geometry, position and direction and plane figures accurately, ensuring effective communication.	Signs terms related to geometry, position and direction and plane figures with negligible errors.	Signs terms related to geometry, position and direction and plane figures with substantial errors which impedes meaning.
Ability to identify a clockwise and an anti-clockwise	Identifies a clockwise and an anti-clockwise turn by applying the concept of	Identify a clockwise and an anti-clockwise turn.	Identify a clockwise and an	Identify a clockwise and an anti-clockwise turn with

turn	rotational direction accurately.		anti-clockwise turn with minimal difficulties shapes.	major difficulties.
Ability to identify an angle at a point and from the objects	Identifies an angle at a point and from the objects by providing clear and detailed explanations.	Identifies an angle at a point and from the objects by displaying consistency.	Identifies an angle at a point and from the objects making errors that require correction.	Identifies an angle at a point and from the objects by requiring significant support to improve proficiency.
Ability to identify properties of plane figures	Identifies properties of plane figures by providing clear and detailed explanations.	Identifies properties of plane figures.	Identifies properties of plane figures with minimal difficulties.	Identifies properties of plane figures by making errors to recognise the properties.

Strand	Sub Strand	Specific Learning Outcomes	Suggested Learning Experiences	Suggested Key Inquiry Questions
4.0 DATA HANDLING	**4.1 DATA** **(8 Lessons)**	By the end of the sub strand, the learner should be able to: a) sign terms related to data. b) name the materials for data collection and recording in real life situations c) collect data of at most 10 items within the school environment d) draw a table for recording data e) Record data in the table f) Interpret the raw data from the table g) use digital devices or	● In groups, learners are to be guided to identify, fingerspell, sign and write terms related to data. ● In groups or pairs, learners are guided to discuss and write different materials that are used for data collection and recording such as chalkboard rulers, exercise books for drawing tables, and textbooks. Note: Resources from the immediate classroom environment can also be considered.	How can you represent data?

		other resources for recording data, h) appreciate the use of frequency tables in representing data in real life situations.	• In groups or pairs, learners are guided to observe the teacher's demonstration/watch a video on materials used for collecting data, then • note down key points. • In groups or pairs, learners are guided to gather and share different items for purposes of recording data. • In groups, learners are guided to discuss and design a table for recording some given data, then do a class presentation. • In groups, learners are guided to represent the raw data in simple tables • In groups or pairs or	

			individually, learners are guided to explain and interpret the raw data from the table. ● In groups, learners are guided to discuss and present the use of frequency distribution tables in presenting data. ● In pairs or groups, learners are guided to use print texts or digital devices and other available resources for data collection and recording.	
Core competencies to be developed: ● Critical thinking and problem solving: as learners in groups/p airs represent the raw data in simple tables ● Digital literacy: as learners uses digital devices other resources and for data collection and recording.				
Values: ● Love: as learners in groups/pairs gather and share different items for purposes of recording data. ● Responsibility: as learners use digital devices and other learning materials.				

Pertinent and Contemporary Issues (PCIs): **Environmental education:** as learners collects materials from the immediate classroom environment like number of classrooms
Link to other learning areas The learner is able to relate data collection and recording to Democracy in society in Social Studies.
Suggested Learning Resources: ● Printouts of data from different sources, charts, relevant digital devices, signs dictionary

Assessment Rubrics

Level / Indicators	Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Ability to sign terms related to data.	Signs terms related to data.	Signs terms related to data.	Signs terms related to data.	Signs terms related to data.
Ability to collect data of at most 10 items	Collects data of at most 10 items by utilising a variety of sources and techniques to gather data.	Collects data of at most 10 items by using appropriate methods for the given context.	Collects data of at most 10 items with minimal difficulties.	Collects data of at most 10 items with major difficulties.
Ability to draw a table for recording data.	draws a table for recording data with exceptional clarity, using appropriate headings, labels and formatting.	Draws a table for recording data with clear headings, labels and formatting.	Draws a table for recording data with occasionally unclear headings and labels but may lack consistency.	Draws a table for recording data with unclear headings and labels and formatting.
Ability to Interpret the raw data from	Interprets the raw data from the table by providing insightful	Interprets the raw data from the table	Interprets the raw data from the table with minimal	Interprets the raw data from the table with major

the table	interpretations.	by recognising patterns.	difficulties.	difficulties.

SUGGESTED RESOURCES

STRAND	SUB STRAND	SUGGESTED RESOURCES
NUMBERS	Whole numbers	Place value apparatus, number charts, number cards, multiplication table
	Addition	Place value chart, Abacus
	Subtraction	Place value chart, Abacus
	Multiplication	Multiplication tables
	Division	Multiplication tables
	Fractions	Equivalent fraction board, Circular and rectangular cut outs, counters, clock face
	Use of letters	Information from different sources
	Decimals	100 square grid, rectangular paper strips, Place value charts, number cards
MEASUREMENT	Length	Metre rule, 1metre sticks, tape measure
	Area	Square cut outs, paper cut outs
	Mass	1kg mass, soil or sand, manual/electronic weighing machine, beam balance
	Volume	Cubes, cuboids
	Capacity	1 litre containers, containers of different sizes, water, sand, soil
	Time	Analogue and digital clocks, digital watches, am /pm chart
	Money	Real / imitation money, price list
GEOMETRY	Position and direction	Clock face

	Angles	Representation of different angles
	plane figures	Cut outs of rectangles, circles, and triangles of different sizes
DATA HANDLING	Data	Data from different sources

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 among other suggested non-formal activities

STRAND	SUB STRAND	SUGGESTED NON-FORMAL ACTIVITIES
Numbers	Whole Numbers	Learners to play number games and count items in the environment.
	Addition	Learners to work out total scores in a game.
	Subtraction	Learners to work out the difference in scores for various teams during play.
	Multiplication	Learners to work out the number of flowers in a flower bed by considering the number of rows and Columns.
	Division	Learners to distribute themselves into teams during play activities e.g. football.
	Fractions	Learners to share items during play.
	Decimals	Learners to represent decimals using paper cut outs during play.
	Use of letters	Learners to represent items using letters during play.
Measurement	Length	Learners to mark play areas.
	Area	Learners to mark their areas of operation in different games e.g. netball.
	Mass	Learners to play games using a sea saw.
	Volume	Learners to pile up same items during play.
	Capacity	Learners to fill and empty containers during play.
	Time	Learners to observe shadows and relate them to different times of the day.
	Money	Learners to practice shopping activities during play.

Geometry	Position and Direction	Learners to make different turns during singing games.
	Angles	Learners to make toys of cars or dolls during play.
	plane figures	Learners to make different shapes for use during play.
Data Handling	Data	Learners to represent different number of items using sticks as tallies practically.