



KENYA INSTITUTE OF CURRICULUM DEVELOPMENT

CURRICULUM DESIGNS

ADAPTED MATHEMATICS

FOR

LEARNERS WITH VISUAL IMPAIREMENT

GRADE 1-3

FOREWARD

The Basic Education Curriculum Framework (BECF) outlines the vision and mission for the curriculum reforms. The Vision of the curriculum reforms is to develop “an engaged, an empowered and ethical citizen “while the mission is to “to nurture the potential of every learner”.

The framework adopts a Competency Based Curriculum and has identified seven core competences, namely; communication and collaboration, critical thinking and problem solving, creativity and imagination, citizenship, digital literacy, learning to learn, and self-efficacy. It provides a variety of opportunities for identification and nurturing of learner’s potentials and talents in preparation for life and the world of work. It is geared towards making learning enjoyable.

The curriculum designs are developed to enable implementation of the Basic Education Curriculum Framework. The design contains the National Goals of Education, outlines the Early Years Education (EYE), subject general and specific learning outcomes. It also suggests a variety of learning experiences, assessment, resources and links the topics to values, Pertinent and Contemporary Issues (PCI) and to other subjects.

It is my hope that all educators in Early Years Education level will anchor their delivery of Basic and Teacher education on these Curriculum Designs.

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ACKNOWLEDGEMENT

Learners with visual impairment experience limitation in acquiring information through vision. They use other senses to acquire information there by necessitating adaptation of the curriculum. The basic education curriculum frame work provides for adaptation of the curriculum to suit the needs of the various categories of learners with special needs.

The Kenya institute of curriculum development (KICD) has adapted curriculum designs in the various learning areas to enable learners with special needs and disabilities have access to education

I wish to express my sincerer gratitude to the special needs education section, panel member's ministry of education and other organizations and practicing teachers who participated in the adaptation of mathematics activities for learners with visual impairment.

National Goals of Education

The Framework will be anchored on the National Goals of Education.

Education in Kenya should:

1. Foster nationalism, patriotism, and promote national unity

Kenya's people belong to different communities, races and religions and should be able to live and interact as one people. Education should enable the learner acquire a sense of nationhood and patriotism. It should also promote peace and 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 the family, community, national, regional and international 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 develop in the learner necessary competences for technological and industrial development for the nation in tandem with 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 Kenya 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 for learners with special educational needs and disabilities. Education should also provide the learner with opportunities to develop and practice shared responsibility and accountability through community 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 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 empower the learner to respect, appreciate and participate in the opportunities within the international community. Education should also enable the learner to operate within the international community with full knowledge of the obligations, responsibilities, rights and benefits that this membership entails.

8. Promote positive attitudes towards good health and environmental protection

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

Core Competencies for Basic Education

Communication and Collaboration

Communication is the act of transferring information from one place to another, whether vocally, visually, or non-verbally. The discipline of communication focuses on how people use messages to generate meanings within and across various contexts, cultures, channels, and media. The discipline promotes the effective and ethical practice of human communication.

Spitzberg (1988) defines communication competence as the ability to interact well with others in terms of accuracy, clarity, comprehensibility, coherence, expertise, effectiveness and appropriateness. On the other hand Friedrich (1994) suggests that communication competence is best understood as "a situational ability to set realistic and appropriate goals and to maximize their achievement by using knowledge of self, other, context, and communication theory to generate adaptive communication performances."

In this respect, it can be argued that being able to communicate effectively as intended is the most important of all life skills. How well information can be transmitted and received is a measure of how good our communication skills are. Developing communication skills helps in all aspects of an individual's life.

Parks (1985) maintains that communicative competence can effectively be measured by determining if, and to what degree, the goals of interaction are achieved. He emphasizes three interdependent themes: control, responsibility, and foresight; and argues that to be competent, learners must not only 'know' and 'know how,' but rather they must also 'do' and 'know that we did'. He defines communicative competence as the degree to which individuals perceive they have satisfied their goals in a given social context without jeopardizing their ability or opportunity to pursue their other subjectively more important goals.

A useful framework for understanding communication competence was designed by Spitzberg and Cupach (1984). They propose a model that can be used to understand communication referred to as the component model of competence. The model asserts that communication competence is mutually defined by the interdependency of the cognitive component (concerned with knowledge and understanding), the behavioural component (concerned with behavioural skills), and the affective component (concerned with attitudes and feelings about the knowledge and behaviours) by interactions in an interpersonal encounter within a specific context.

This then implies that education at each level should endeavour to enhance the learner's acquisition of effective communication skills through which they can interact and express themselves during the learning process. In this respect, it would be prudent to be cautious when deciding on the language to be used as a medium of instruction at the early year's education level. It is also important to take cognizance of appropriate modes of communication for learners with special educational needs.

Collaboration is the process of two or more people or organizations working together to realize shared goals. Collaboration may require leadership, although this can be social within decentralized or egalitarian groups or teams that work collaboratively in relation to gaining greater resources, recognition and motivation. Strategies for effective communication enhance the attainment of greater collaboration among groups that ultimately increase the success of teams as they engage in collaborative problem solving. Collaboration is also present in opposing goals exhibiting the notion of adversarial collaboration, though this is not a common case for using the word. Collaborative learning is a system in which two or more people co-operate in a learning experience to share and

contribute to each member's understanding of a topic and to complete a given task. Collaborative learning is designed to help learners learn from each other and can be an important aspect of the school curriculum. Lesson plans for collaborative learning may vary greatly. Sometimes teachers will build a lesson designed specifically to teach collaborative learning and teamwork. There are many team building games and activities that can be done in a classroom that force learners to work together to complete a task. Other collaborative learning exercises are designed around a particular school subject. For instance, in a speech class, a teacher might put learners up into teams and have them work together to make a presentation on a subject together. In this scenario, learners can learn just as much as if they were developing a presentation on their own, but they get the added benefit of learning how to collaborate.

Self-efficacy

Self-efficacy is a person's belief about his or her capabilities to perform tasks or assignments that can change and transform his or her life. It determines how the person feels, thinks, behaves and motivates themselves. Self-efficacy has the potential to determine four major processes namely cognitive, motivational, affective and selection processes.

A strong sense of self-efficacy enhances a learner's accomplishment and personal well-being in many ways. Learners with high assurance in their capabilities approach difficult tasks as challenges to be mastered, rather than as threats to be avoided. Self-efficacy fosters intrinsic interest and deep engrossment in activities. Learners set themselves challenging goals and maintain a strong commitment to them.

Self-efficacy as a competence will enable learners to develop and nurture intra-personal skills and values such as self-awareness, self-esteem, confidence and personal integrity. These competencies will enhance the learner's ability to heighten and sustain efforts in the face of failure and effectively manage stressful situations. A learner with a strong sense of self-efficacy will be courageous and bold enough to set and pursue personal educational, family, community, entrepreneurial, professional, and career goals in all forms of employment that will lead to personal accomplishment (British Council, 2016). An efficacious learner will be aware of the resources at their disposal and will take personal responsibility for the use, care, management, protection and preservation of these resources.

A learner with strong self-efficacy will be internally motivated to establish and maintain healthy interpersonal relationships. They will demonstrate interpersonal relationship skills such as assertiveness, empathy, effective communication, negotiation skills, non-violent conflict resolution skills and peer pressure resistance skills. Creative and critical thinking that leads to effective decision making and problem solving is based on a strong sense of self-efficacy (British Council, 2016). Capacity building of teachers and parental engagement are two crucial factors that would determine acquisition of self-efficacy. The school will be expected to provide opportunities for parents to be empowered and engaged in the affairs and welfare of their children's education.

Critical Thinking and Problem Solving

An important outcome of quality education is teaching learners how to think critically. The British Council (2015) identifies three types of thinking: reasoning, making judgements, and problem solving. It is possible for learners to reason in an uncritical way. When learners are empowered with critical thinking, they avoid being subjective, and use logic and evidence to arrive at conclusions. Critical thinking also facilitates exploring new ways of doing things and learner autonomy. Learners learn that for every issue there are multiple perspectives that they can explore, rather than a rigid recall and regurgitation of information.

Critical thinking is important for lifelong learning. It helps learners to have an open mind and be ready to listen and appreciate information and opinions that may sometimes conflict with their earlier held beliefs and positions. Critical thinking and problem solving are useful for learners of all ages and in all the subjects and disciplines offered in the basic education curriculum. For example, in the sciences learners need to think critically about observations and patterns to develop ideas on how to solve problems. These competencies are also important for solving problems in their lives and communities, and will ultimately help them to fulfil their potential, which is the vision for the basic education curriculum. This will contribute to addressing the unemployment challenge in Kenya.

Critical thinking and problem solving will be developed through age appropriate activities and programmes in the school curriculum. For example, at pre-primary school level learners can be asked to come up with the best ways of using and keeping their books, stationery and other personal items safe. At the other end of the basic education spectrum, learners can be asked to come up with the best ways of addressing the challenge of scarce resources such as water in the school and community.

Creativity and Imagination

Creativity and imagination refers to the ability to form new images and sensations in the mind, and to turn them into reality (British Council, 2016). It is the ability to imagine things that are not real, to form pictures in the mind of things that one has not seen or experienced, and turn those pictures into real things. It also refers to the act or power of forming mental images of things that are not present to the senses, or that are never wholly perceived in reality, and creating physical representations of those images. Imagination only exists or happens in the mind, and it remains in the mind. Creativity and imagination on the other hand, is characterized by the ability to perceive the world in new ways, to find hidden patterns, to make connections between seemingly unrelated phenomena, and to generate solutions. It is a phenomenon whereby something new and valuable is formed.

In educational terms, creativity and imagination refers to the ability of learners and their teachers to form images and ideas in their minds, and turn them into real, visible creations. Learners who are imaginative and creative are able to make life interesting for

themselves and others around them. They are able to use the knowledge, skills and values acquired in the learning process to create new ideas that result in products that add value to their lives and to the lives of others around them. The competence based curriculum recognizes this hidden ability in learners. It will therefore, inspire learners' imagination by presenting knowledge in ways that encourage learners to think as individuals. It will create scenarios that help learners to engage in imagination and encourage them to develop creations steered by the imagination. Their ability to imagine will be stretched through exposure to challenging situations that help to expand their thinking and creativity skills. The curriculum will also create room for innovative ways of teaching as well as creating an environment conducive to learning that offers all learners opportunities to explore their full potential in and through creativity and imagination.

Citizenship

Historically, human beings have always formed communities based on a shared identity. Such identities are forged in response to a variety of human needs, which might be economic, political, religious or social. As group identities grow stronger, those who hold them in commonality with others organize themselves into communities, articulate their shared values, and build governance structures to support their beliefs. The individuals in these communities identify themselves as citizens.

Citizenship is the state of being vested with the rights, privileges, and duties of a citizen. It creates a sense of belonging and attachment to one's nation. A sense of citizenship helps to equip young people to deal with situations of conflict and controversy knowledgeably and tolerantly. They are able to understand the consequences of their actions, and those of the adults around them.

Global citizenship is a way of living which recognizes that our world is an increasingly complex web of connections and interdependencies. One in which our choices and actions may have repercussions for people and communities locally, nationally or internationally. It nurtures personal respect and respect for others, wherever they live. It encourages individuals to think deeply and critically about what is equitable and just, and what will minimize harm to our planet.

Digital Literacy

Digital literacy can be described as having the knowledge, skills and behaviours which are necessary to effectively and safely use a wide range of digital content and devices. Such devices include mobile phones, smart phones, tablets, laptops and desktops among others. All these fall within the category of network enabled devices. Digital literacy focuses mainly on network enabled devices and should not be confused with computer literacy skills. However, traditional forms of literacy and computer literacy are enhancers in the acquisition of digital literacy skills.

Individuals are presumed to be digitally literate if they possess a broad range of digital skills and knowledge, and have a basic understanding of the potential uses of computing devices. Digital literacy skills also include being able to use computer communication networks, being able to engage in online communication and social networks, being aware of and adhering to ethical behaviour protocols, being aware of societal issues raised through digital media, and being able to search, evaluate and use information channelled through digital platforms. Furthermore, the digital literate individual should also have the ability to safely and securely use technology while being able to assess the nature of the information acquired in order to support and enhance the environment (British Council, 2015). Digital literacy as a competence therefore encompasses knowledge and skills concerning the appropriate application of a variety of hardware platforms such as computers, tablets and mobile devices, and their software including but not limited to web search or internet application software. Digital literacy is a dynamic competence due to the fast-changing world of information communication technology and the ongoing development of technological devices as well as their related software. This is an area in which there is constant innovation and development as the industry attempts to keep up with a globally increasing demand for efficient and effective communication technologies.. Currently, digital literacy is considered as one of the main core competencies for learning and life in the 21st century. It challenges existing thinking and practice while leading to a more innovative, creative and often transformational learning.

Learning to Learn

Learning is a continuous process that begins at birth and continues until death; it is the process through which we use our experience to deal with new situations and to develop relationships. As a concept, it involves far more than thinking as it incorporates the whole personality – senses, feelings, intuition, beliefs, values and will. If we do not have the will to learn, we will not learn and if we have learned, we are actually changed in some way. If the learning makes no difference it can have very little significance beyond being random ideas that float through our consciousness.

Learning to learn is the ability to pursue and persist in learning, to organise one's own learning by the effective management of time and information, both individually and in groups. This competence includes awareness of one's learning process and needs, identifying available opportunities, and the ability to overcome obstacles in order to learn successfully. This competence means gaining, processing and assimilating new knowledge and skills as well as seeking and making use of guidance. Learning to learn helps learners to build on prior learning and life experiences in order to use and apply knowledge and skills in a variety of contexts. There are four pillars of learning: Learning to know, learning to do, learning to be and learning

Learning Outcomes for Early Years Education

By the end of early years' education, the learner should be able to:

1. Demonstrate basic literacy and numeracy skills for learning.
2. Communicate appropriately using verbal and/or non-verbal modes in a variety of contexts.
3. Demonstrate appropriate etiquette in social relationships.
4. Apply creativity and critical thinking skills in problem solving.
5. Explore the immediate environment for learning and enjoyment.
6. Practice hygiene, nutrition, sanitation, safety skills to promote health and wellbeing.
7. Demonstrate the acquisition of emotional, physical, spiritual, aesthetic and moral development for balanced living.
8. Demonstrate appreciation of the country's rich and diverse cultural heritage for harmonious co-existence.
9. Apply digital literacy skills for learning and enjoyment.

ESSENCE STATEMENT

Mathematical Activities

Numeracy is a foundational skill that prepares the learner for number work and mathematics in higher levels of schooling. Numeracy activities involve identification and value placement of mathematical numerals as well as basic mathematical operations such as addition, subtraction and multiplication.

SUBJECT 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

PREAMBLE

Education for learners with visual impairment requires that the learners are provided with opportunities to utilize the remaining senses. This call for the teacher to employ various teaching and learning strategies and resources to meet unique needs of each individual learner.

The teacher as well as the learner is therefore expected to make use of resources such as print and electronic media, assistive devices, technology and braille material, resource person and interaction with realia in the environment

The vital role of the learner in the learning process has also been recognized, in connection the teacher is strongly advised to employ participatory approaches to learning in order to tap and in cooperate the learners experiences

The teacher for learners with visual impairment should

- a) Possess positive attitude towards the learners with visual impairment

- b) Exercise great patience and commitment when teaching.
- c) Be competent in learning areas.
- d) Be competent and proficient in English, mathematical and Kiswahili braille.

Draft: Curriculum Design GRADE 1

Strands	Sub-strand/theme/topic/ Suggested time	Specific Learning Outcomes (KSA)	Suggested Learning Experiences (Align to the level of competency descriptors)	Key Inquiry Questions
1.0 Numbers	1.1 NUMBER CONCEPT; SUGGESTED TIME:20 periods of 35 minutes each)	Learner to; a) Sort and group objects to organize numbers. b) Pair and match to determine objects which are similar c) Order and sequence for counting d) Form Patterns in the classroom e) Say number names up to 50 for counting[s] f) Represent numbers 1-50 using concrete objects for familiarisation of numbers(S) g) show that a group has only one count of objects for conservation of numbers(S) h) Appreciate the use of sorting and grouping in day to day activities	<ul style="list-style-type: none"> • Learners could be encouraged to cooperate as they learn in groups and appreciate the qualities of leadership displayed as they take turns. • Learners could be guided to go outside the classroom <u>with sighted guides</u> and collect different types of objects. The teacher should guide on the safety of the objects • Learners could <u>be guided</u> to put objects with same attribute together • Learners <u>could be guided</u> to pair objects in two groups(to establish equal, more than and less than) • Learners could <u>be guided</u> to order objects according to size from smallest to biggest or vice versa to form a pattern • Learners to say number names up to 50 • Learners could be <u>shown</u> to represent numbers 1-50 using 	<ol style="list-style-type: none"> 1. How can you group different objects? 2. How can we find out which group has more objects than another? 3. How can we arrange objects of different sizes?

			<p>concrete objects as well as <u>their body parts by hands on experience.</u></p> <ul style="list-style-type: none"> • Learners could be guided to show that any given group has only one count. • In groups or in pairs learners could talk about types of litter in the school compound. • Learners could be guided to collect a part of this litter, sort it and put it in various groups according to an attribute of their choice and talk about the activity • In groups or in pairs learners could be guided to assist in arranging, edible items in the school store like fruits, cabbages according to size <u>colour contrast for learners with low vision and texture</u> etc. • Learners could be taken to a market place for them <u>to see and touch the sorted and grouped fruits</u>, cabbages, tomatoes etc. and talk about the meaning in terms of cost 	
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Core Competences to be developed: critical thinking and problem solving when ordering and pairing .communication and collaboration when working in groups,	
Link to PCIs: ESD; Environmental education when collecting litter.	Link to Values: Respect, Responsibility
Links to other subjects : Languages, environmental activities	Suggested Community Service Learning activities: count trees in one homestead and assist in collecting litter and observe as it is disposed.
Suggested Non formal Activity to support learning: arrange desks in the classroom in neat rows and columns	Suggested assessment: Oral questions, written workboth in Braille and print, observation

Suggested Resources; Manila paper, a pair of scissor, biscuits, circular and rectangular cut outs, marbles, bottle tops, sticks, grains, stones large print exercise books pencils Braille paper slate stylus types type board cubes cubrithms rubber ,Braille card, flash cards, counting frame tens frame pegs and peg boards, blocks

Suggested formative assessment rubric.

Exceeding expectation	Meeting expectations	Approaching expectations	Below expectations	
Learner is able to; To sort and group objects, pair and match, order and sequence, form patterns, say number names up to fifty represent numbers 1-50 using concrete objects, show that a group has only one	Learner is able to sort and group objects, pair and match, order and sequence, form patterns, say number names up to 50, represent numbers 1-50, using concrete objects, and show that a group has only one count	Learner is able to sort and group objects pair and match, order and sequence objects, form patterns, say number names up to 50, represent numbers 1-50 using concrete objects , and show that a group has only one count with	Learner is not able to sort and group objects, pair and match objects, has challenges in forming patterns, is not able to say number names up to 50,represent number names 1-50 using concrete objects and show that a group	

count and even make his or her own patterns		assistance	has only one count.	
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Strands	Sub-strands/Topic/Theme Suggested time	Specific Learning Outcomes (KSA)	Suggested Learning Experiences (Align to the level of competency descriptors)	Key Inquiry Questions
NUMBERS;	1.2WHOLE NUMBERS; (SUGGESTED TIME; 25 Periods of 35 minutes each)	Learners to; a) Count from 1-100 by: 1's forward and backward up to 20 Using a number line for learners <u>with low vision and counting frame for learners who are blind to form patterns</u> i. 2's up to 20 ii. 5's up to 50 iii. 10's up to 100 to form different number patterns(K) b) Represent numbers 1-50 using concrete objects to enhance fine motor skills in when working with numbers(S) c) Identify place value of ones and tens to read two digit numbers(K) d) Read numbers 1-50 on Braille/large print cards to enhance number recognition	a) Learners could be encouraged to cooperate as they learn in groups and appreciate the qualities of leadership displayed as they take turns. b) Learners practice to take turns to count in 1's forward and backward up to 20. c) In groups or in pairs Learners could be guided to count using <u>a number line in enlarged print and counting frame for learners who are blind.</u> d) Learners could be guided to take turns to count in 2's forward up to 20 using body parts e) Learners to take turns	1. In how many ways can we count from 1-20? 2. How do we count on the number line?

		<p>e) Write numbers 1-50 in symbols to enhance writing skills of numbers</p> <p>f) Write numbers 1-50 in words to enhance spelling</p> <p>g) Work out missing numbers in number patterns up to 20 to enhance rote counting in number sequence(K)</p> <p>h) Appreciate use of..... number patterns in counting numbers[A]</p>	<p>to count in 5's forward up to50</p> <p>f) Learners to take turns to count 10's forward up to100</p> <p>g) Learners in groups to play games of representing numbers 1-50 using concrete objects</p> <p>h) Learners <u>could be guided</u> to collect more than 20 objects from outside the classroom and then tie them in two groups of ones and tens while observing safety of the objects.</p> <p>i) Learners say the place value of the numbers.</p> <p>j) Learners in pairs to recite numbers 1-50</p> <p>k) Learners to practice writing 1-50 in symbols</p> <p>l) Learners to practice writing numbers 1-10 in words</p> <p>m) In pairs Learners could be asked to come up with patterns with numbers up to 20 and share with other</p>	
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			<p>groups</p> <p>n) learners could be guided to play a game where a group comes up with a pattern with missing numbers and other groups compete on which group can get the correct answer</p> <p>o) learners to be guided role play a cashier in a shop counting money in 5 shilling coins</p> <p>p) Learners to be guided to mark out patterns using taped ropes on a school path and use steps e.g. 1,3,5,7 to place the 1st Braille/large print card and another Braille/large print card after two steps and so on.</p>	
Core Competences to be developed: communication and collaboration critical thinking and problem solving				
Link to PCIs: ESD:Environmental education when learners are guided to only use objects that do not affect plant life. LSP;learning To Live Together; as they work in groups.			Link to Values: Respect, Responsibility,Commitment	
Links to other subjects : Languages,environmental activities movement and creative activities.			Suggested Community Service Learning activities: count number of animals in a homestead in 1s and 2s for future reference.	

Suggested non formal Activity to support learning: count and distribute Braille papers and books.	Suggested assessment: oral questions observation written work
Suggested resources: sticks marbles stones counting blocks grains tape rope marking pens marking pencils .	

Suggested Formative Assessment Rubrics;

Exceeding expectations	Meeting expectations	Approaching expectations	Below expectations
Learner is able to count from 1-100 by 1s forward and backward up to 20, use number line for learners with low vision and tens frame for learners with blindness, 2s up to 20, 5s up to 50, 10s up to 100, represent numbers 1-50 using concrete objects , identify place value of ones and tens , read numbers 1-50 in symbols on Braille cards and large print, write numbers 1-50 in symbols ,write numbers 1-10 in words work out missing numbers in number patterns up to 20 and even work out missing numbers beyond 20.	Learner is able to count from 1-100 by 1s forward and backwards up to 20, use number line for learners with low vision and tens frame for learners with blindness , , 2s up to 20, 5s up to 50, 10s up to 100, represent numbers 1-50 using concrete objects , identify place value of ones and tens , read numbers 1-50 in symbols on Braille cards and large print, write numbers 1-50 in symbols ,write numbers 1-10 in words work out missing numbers in words work out missing numbers in number patterns up to 20.	Learner is able to count from 1-100 by 1s forward and backwards up to 20, use number line for learners with low vision and tens frame for learners with blindness , , 2s up to 20, 5s up to 50, 10s up to 100, represent numbers 1-50 using concrete objects , identify place value of ones and tens , read numbers 1-50 in symbols on Braille cards and large print, write numbers 1-50 in symbols ,write numbers 1-10 in words work out missing numbers in words work out missing numbers in number patterns up to 20 with assistance.	Learner has challenges in counting from 1-100 by 1s forward and backwards up to 20, use number line for learners with low vision and tens frame for learners with blindness , , 2s up to 20, 5s up to 50, 10s up to 100, learner has challenges to represent numbers 1-50 using concrete objects , identify place value of ones and tens , read numbers 1-50 in symbols on Braille cards and large print, write numbers 1-50 in symbols ,write numbers 1-10 in words work out missing numbers in words work out missing numbers in number patterns up to 20

Strands	Sub-strands/Topic/Theme Suggested time	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
Numbers;	1.3 ADDITION OF WHOLE NUMBERS; (SUGGESTED TIME; 25 Periods of 35 minutes each)	Learners to; a) Put objects together for addition b) Use plus[+] and [=] to write an addition sentence c) i) Add 2 single digit numbers by counting on to get the total ii) Add 2 single digit number by using a number line and tens frame to get the total d) i) Add a single digit number up to a sum of 10 by using concrete object to get the value of objects ii) Add a 3 single digit numbers by	<ul style="list-style-type: none"> • Learners to be guided to go out and collect safe objects to use in the activity of putting together • Learners could be guided to work in pairs or in groups to put objects together • Learners to be guided to write + and = signs in additional sentences • Learners could be guided on adding 2 single digit-numbers by skipping on a number line learners who are blind could be guided to touch numbers on a Braille chart • Learners could be guided to add 2 single digit numbers by using concrete objects to make a ten 	<p>a) How do you get total of two separated group objects?</p> <p>b) How do you use number line in adding number</p> <p>c) How do you add 3 single digit numbers</p> <p>d) How do you add 2 digit number a 1 digit number</p> <p>e) How can you get missing number an addition pattern?</p>

Strands	Sub-strands/Topic/Theme Suggested time	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
		<p>counting on to get the total value</p> <p>iii) Add a 3 single digit numbers by using a number line and counting frame</p> <p>e) i) Add a 2 digit number to a 1 digit number without regrouping vertically with a sum not exceeding 100 to align place value correctly.</p> <p>ii) Add a 2 digit number to a 1 digit number without regrouping horizontally with a sum not exceeding 100 to align place value correctly</p>	<ul style="list-style-type: none"> • Learners to add 2 single digit number by counting on • Learners to add 3 single digit numbers by using a number line while learners who are blind could be guided to touch numbers on a Braille card • Learners could be guided to add 3 single digit numbers by counting on • Learners could be guided to add 3 single digit numbers using concrete objects to make a 10 • Learners could be guided to add a 2 digit number to a 1 digit without regrouping vertically with a sum not exceeding 100 • Learners could be guided to add a 2 digit 	

Strands	Sub-strands/Topic/Theme Suggested time	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
		iii) Add a 2 digit number to a 1 digital number without regrouping by counting on with a sum not exceeding 100 to align place value correctly f) Add multiples of 10 up to 100 vertically to get the total value of ones and tens g) Work out missing numbers in patterns involving addition of whole numbers up to 100 for sequencing of numbers while adding h) Appreciate the use of number patterns in	number to a 1 digit number without regrouping horizontally with sum not exceeding 100 <ul style="list-style-type: none"> • Learners could be guided to add a 2 digit number to 1 digit number without regrouping by counting on with sum not exceeding 100 • Learners could be guided to add multiples of up to a 100 vertically up to 100 • Learners could be guided to make patterns of numbers involving addition up to 100 • Learners could sing a song on adding whole numbers. 	

Strands	Sub-strands/Topic/Theme Suggested time	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
		counting numbers.		
Core Competences to be developed: communication and collaboration while working in groups critical thinking and problem solving in mathematics.				
Link to PCIs: ESD: Safety and Security Education; exercising safe measures in handling objects.			Link to Values: Respect, Responsibility	
Links to other subjects : Hygiene and Nutrition Activities Environmental activities			Suggested Community Service Learning activity: visit a home and count the total number of people	
Suggested Non formal Activity to support learning: learners count and keep stylus and pencils in appropriate container in the cupboard.			Suggested assessment: Oral questions, written exercise, observation	
Suggested Resources: place value charts; abacus ;basic addition facts chart; Braille cards ;sticks grains				

Suggested formative assessment rubric

Exceeding expectations	Meeting expectations	Approaching expectations	Below expectations
Learner is able to Correctly, add using concrete objects, use + and = signs, add up to more than 2 digit numbers to 1 digit numbers using different strategies, add multiples of 10 beyond 100, works out missing numbers in patterns up to more	Learner is able to add using concrete objects, use + and = signs, add up to more than 2 digit numbers to 1 digit numbers using different strategies, add multiples of 10 up to 100, work out missing	Learner is able to add using concrete objects, use + and = signs, add up to more than 2 digit numbers to 1 digit numbers using different strategies, add multiples of 10 up to 100, work out missing numbers in patterns up to 100	Learner has major inaccuracies in addition using concrete objects, has challenges to use + and = signs, add up to more than 2 digit numbers to 1 digit numbers using different strategies, is not able to add multiples of 10 beyond 100,

than 100	numbers in patterns up to 100	with assistance.	work out missing numbers in patterns up to 100

Strand	Sub-strands/Topic/Theme/ Suggested time	Specific Learning Outcome	Suggested Learning Outcomes (aligned to the level competency descriptors)	Key Inquiry Questions
NUMBERS:	1.4 SUBTRACTION: (SUGGESTED TIME;20 Periods of 35 minutes each)	Learner to; a) Take away using concrete objects for subtraction b) Use minus sign to separate digits c) Subtract single digit numbers by counting backwards to compute digits to arrange numbers in the correct sequence d) Subtract single digit numbers by use of number line and tens frame to apply	<ul style="list-style-type: none"> • Learner could be guided to play a game where they make a rhythmic clap while standing and whoever misses a clap is asked to sit down learners say how many remain standing. • Learners could be guided to identify minus sign on Braille cards and on flash cards. • Learners could be guided to come up with different ways of subtracting single digit numbers. • Learner could be guided to work out subtraction by counting backwards • Learners could be guided to come up with 	<ol style="list-style-type: none"> 1. When playing a game and someone loses, what happens? 2.What activities can we do to show/demonstrate subtractions? 3.How can we workout the following questions? 3.How can we skip on number line to demonstrate take away?

		<p>subtraction facts</p> <p>e) Subtract up to 2 digit numbers based on basic addition facts to identify relationship between addition and subtraction</p> <p>f) Show the relationship between addition and subtraction by stating basic addition facts to work out basic operations</p> <p>g) Subtract multiples of 10 up to 90 to breakdown numbers</p> <p>h) To fill in missing numbers in number patterns up to 100</p> <p>i) Appreciate the use of [-] and = in solving problems involving subtraction</p>	<p>suggestions on how to skip on a number line [learners with low vision] as a mode of subtraction while learners who are blind could be guided to count backwards on a Braille card with an embossed number line.</p> <ul style="list-style-type: none"> • Learners could be guided to solve routine and non-routine problems involving subtraction of up to 2 digit numbers based on basic addition facts • Learners could be guided to formulate questions relating to subtraction within basic addition facts • Learners could be guided to use adapted tablets laptops in or outside class to workout subtraction of multiples of 10 up to 90 • Learner to do an outdoor activity [in absence of tablets] involving putting small stones in groups of ten. • In groups or in pairs learners could be guided 	<p>4. How can we solve the following problems? E.g. $12 - 4 =$ (non routine) or I have 12 pencils, I give Mary 4 pencils. How many am I left with?(routine)</p> <p>5. Which other mathematical sentences can we develop from e.g. $11 - 4 = ?$</p> <p>6. How can we develop a takeaway pattern (relating to addition done?)</p>
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			to create meaningful subtraction patterns (using prior knowledge in addition patterns)	
Core Competences to be developed: Communication and collaboration, critical thinking and problem solving, digital literacy.				
<ul style="list-style-type: none"> • Link to PCIs: ESD: Safety and Security Education: collecting assorted objects in a safe environment. LSVE: dignity in losing when playing games. 			Link to Values: Respect, Responsibility, Caring	
<ul style="list-style-type: none"> • Links to other subjects : Environmental Activity • Language Activities • Hygiene and nutrition activities 			Suggested Community Service Learning activities: visit a home and help to move harvested crops from one point to another point.	
Suggested Non formal Activity to support learning: take chairs outside the classroom in readiness for cleaning as they count how many chairs have remained.			Suggested assessment: Written exercise observation and oral questions	

Suggested Resources: marbles sticks learner digital devise eg tablets or laptops, stones, chairs, ropes tape Braille cards , flash cards

Rubrics

Exceeds Expectations	Meets Expectations	Approaching Expectations	Below Expectations
Learner is able to; subtract using concrete objects, use subtractions sign (-) to write subtraction sentences, subtract single digit numbers, subtract up to two digit numbers based on basic addition facts, relate addition and subtraction involving basic addition facts, subtract multiples of 10 from up to 90 and number patterns up to 100 and even beyond 100	Learner is able to; subtract using concrete objects, use subtractions sign (-) to write subtraction sentences, subtract single digit numbers, subtract up to two digit numbers based on basic addition facts, relate addition and subtraction involving basic addition facts, subtract multiples of 10 from up to 90 and number patterns up to 100	Learner is able to; subtract using concrete, subtract using concrete objects, use subtractions sign (-) to write subtraction sentences, subtract single digit numbers, subtract of up to two digit numbers based on basic addition facts, relate addition and subtraction involving basis addition facts, subtracts multiples of 10 from up to 90 and number patterns up to 100 inconsistently and with assistance	Learner has major inaccuracies to subtract using concrete objects, use of subtractions sign (-) to write subtraction sentences, subtract single digit numbers, subtract of up to two digit nos based on basic addition facts, relates addition and subtraction involving basis addition facts, subtracts multiples of 10 from up to 90 and number patterns up to 100

MEASUREMENT

LENGTH

Strand	Sub- strands/Topic/Theme/ Suggested time	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
2.0 Measurement;	2.1 Length; (SUGGESTED TIME:9 periods of 35 minutes each)	Learners to; a) Compare length directly to determine measurements of different objects b) Conserve length of different objects to estimate measurements c) Measure length using arbitrary units distinguish different measurements. d) Appreciate use of length as a measuring unit	<ul style="list-style-type: none"> • Learners could be guided to collect safe objects to be used in direct comparison of length e.g. books, pencil, stick etc. • In groups and in pairs Learners could be guided to compare objects directly to identify objects which are longer than, shorter than or taller than and , same as • Learners could be guided to identify objects which are longer, shorter or same as • Learners could be involved in placing objects of equal length in different positions and describe them using words such as same as, equal 	a) How do you compare the length of two objects? b) Which objects can be used to measure the length of the teacher's table?

Strand	Sub- strands/Topic/Theme/ Suggested time	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
			<p>to</p> <ul style="list-style-type: none"> • In pairs or in groups learners could be guided to measure the chalkboard using various objects e.g. books, pencils, sticks etc. • Learners could talk about the results from various groups • Learners could sing a song as they measure length. 	
<p>Core Competences to be developed: communication and collaboration during group work ,imagination and creativity during direct comparison of objects critical thinking and problem solving when measuring length self efficacy when working in groups and playing games where they lose or win.</p>				
<p>Link to PCIs: CP: Social cohesion: when measuring in groups</p>			<p>Link to Values: Respect, Responsibility, belief in others, assertiveness</p>	
<p>Links to other subjects :environmental activities ,language activities</p>			<p>Suggested Community Service Learning activities: learners visit a tailors shop to assist in</p>	
<p>Suggested Non formal Activity to support learning: tall learner assist in keeping books in uppermost shelf or even rubbing the blackboard.</p>			<p>Suggested assessment: Oral questions Observation</p>	

SUGGESTED ASSESSMENT RUBRICS

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Compare length directly, conserve length and measure length using arbitrary units and beyond	Correctly compare length directly, conserve length and measure length using arbitrary units	Inconsistently compare length directly, conserve length and measure length using arbitrary units	Major inaccuracies Compare length directly, conserve length and measure length using arbitrary units

MASS

Strand	Sub-strands/Topic/Theme/Suggested time	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
MEASUREMENT	2.2Mass; (SUGGESTED TIME: 10 periods of 35 minutes each)	Learner to; a) Directly compare mass to compare heavier and lighter objects b) Conserve mass to detect different weights in objects c) Measure using arbitrary units to compare mass. d) Appreciate the use of mass as a unit of measurement.	<ul style="list-style-type: none"> • Learners could be guided to collect appropriate size of safe materials to use in the activity of comparing mass • In pairs or in groups learners could be guided to use the materials collected to identify which one are: <ul style="list-style-type: none"> - Lighter than the other - Same as the other - Heavier than the 	e) How can you compare the mass of two or more objects? f) What do you do to show that form does not change mass? g) How can you show one or more objects are heavier than same as, lighter than your math textbook?

Strand	Sub- strands/Topic/Theme/ Suggested time	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
			<p style="text-align: center;">other</p> <ul style="list-style-type: none"> • Learner could be shown two objects of equal mass and be guided to change the form of one of the objects by compressing the object. • Learner could be guided to talk about the mass of the two objects and tell that the mass of the compressed object does not change. • In pairs and in groups Learners could be guided to compare mass using arbitrary materials. Each group could select a different material to use for comparing the mass of the others. • Learners could sing a song about mass of different objects. 	
<p>Core Competences to be developed: Communication and collaboration in groupwork, critical thinking and problem solving in measuring ar units, self efficacy in ascertaining results from measuring</p>				

Strand	Sub- strands/Topic/Theme/ Suggested time	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
Link to PCIs :ESD: Safety and security Education: observe caution while compressing objects like tins, LSP: Peer Education: Working together to compare different masses		Link to Values: Respect, Responsibility commitment		
Links to other subjects : Languages, Nutrition and Hygiene		Suggested Community Service Learning activities: learners c visit a farm and help in transporting seeds manure water and fa from one point to another.		
Suggested Non formal Activity to support learning: talk about the mass of different objects in the classroom as they keep the classroom tidy.		Suggested assessment: Oral questions, portfolio, observation		

Suggested Formative Assessment Rubric

Exceeding expectations	Meeting expectations	Approaching expectations	Below expectations
Learner is able to directly compare mass using the words lighter than, heavier than or same as, conserve mass through manipulation, measures mass using arbitrary units correctly and beyond.	Learner is able to directly compare mass using the words lighter than, heavier than or same as, conserve mass through manipulation, measures mass using arbitrary units correctly.	Learner is able to directly compare mass using the words lighter than, heavier than or same as, conserve mass through manipulation, measures mass using arbitrary units correctly with assistance	Learner displays major challenges to compare mass using the words lighter than, heavier than or same as, conserve mass through manipulation, measures mass using arbitrary units correctly.

CAPACITY

Strand	Sub-strands/Topic/Theme/ Suggested time	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
MEASUREMENT	2.3Capacity: (SUGGESTED TIME; 14 periods of 35 minutes each)	Learner to a) Directly compare capacity to determine which holds more or less b) Conserve capacity to determine that shape does not affect capacity c) Measure capacity using arbitrary units to differentiate capacity of different containers d) Appreciate the use of capacity as a unit of measurement.	<ul style="list-style-type: none"> • Learners could be guided to collect safe containers to be used in direct comparison of capacity • Learners could be asked to empty and fill water in different containers to establish which holds more, which holds less and which holds the same • Learners could be guided to identify and compare containers which holds more, which holds less, which holds same • Learners could be guided to fill water in containers of different shapes and sizes and empty into others • Learners could talk about their findings and tell that the shape of a container doesn't affect capacity • Learners could be given same amount of water, a basin and different small 	h) Which container holds full and which holds half full? i) Comparison activity, which container holds the same amount of water? j) What different containers can we use to measure capacity?

Strand	Sub- strands/Topic/Theme/ Suggested time	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
			containers to fill the basin and talk about how many small containers they used to fill the basin <ul style="list-style-type: none"> • Learners could sing a song when measuring capacity. 	
Core Competences to be developed: Communication and collaboration as they work in groups, critical thinking and problem solving when use arbitrary units to measure capacity, citizenship as they act ethically and responsibly in their groups when filling and emptying containers.				
Link to PCIs: HEP: Personal Hygiene: Cleaning any spills, CP: Gender Issues In Education: carry water irrespective of gender			Link to Values: Respect, Responsibility, caring	
Links to other subjects : Languages, Nutrition and Hygiene’,			Suggested Community Service Learning activities: fetch water for elderly citizens	
Suggested Non formal Activity to support learning: count how many cups of water they take in a day			Suggested assessment: Oral questions, portfolio, observation	

Suggested resources water bottles buckets bowls cups jerricans

Rubrics

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Directly compare capacity using more, less same as, conserve capacity using different shapes and sizes. Measure capacity using arbitrary units correctly and beyond	Directly compare capacity using more, less or same as, conserve capacity using and different shapes and sizes, measure capacity using arbitrary units correctly	Inconsistently compare capacity using more, less or same as, conserve capacity using different shapes and sizes and inconsistently measure capacity using arbitrary units with assistance	Has major inaccuracy in comparison of capacity using more, less or same as conserving capacity using different shapes and sizes. Measuring capacity using arbitrary units

TIME

Strand	Sub-Strand	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
MEASUREMENT	2.4Time; (SUGGESTED TIME: 8 periods of 35 minutes each)	Learner to a) Relate daily activities to time to plan daily routine b) Relate days of the week with various activities differentiate daily activities in a week d) Recite months of the year to recall order of the months in a year e) Appreciate the use of time in daily activities	<ul style="list-style-type: none"> In pairs or in groups learners could be guided in identifying activities they do in the morning, afternoon and evening both at home and school i) Learners to sing songs/ rhymes related to days of the week ii) In pairs/groups learners could be guided in identifying activities that takes place during the days of the week Learners to recite poems in 	a) What do you do in the morning, afternoon and evening? b) Which day of the week do you raise the school flag? c) Which day of the week do you worship? d) In which is your birthday?

Strand	Sub-Strand	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
			pairs/groups related to months of the year	

Core Competences to be developed: Self efficacy as they discuss in groups Citizenship as they talk about raising the flag communication a collaboration as they sing songs about their day to day activities	
Link to PCIs: HEP: Personal Hygiene:while talking about daily routine	Link to Values: Respect, Responsibility
Links to other subjects : Languages, Nutrition and Hygiene	Suggested Community Service Learning activities: could vis church and assist in sweeping the grounds.
Suggested Non formal Activity to support learning: doing daily routine at the correct time	Suggested assessment: Oral questions, portfolio, observation

Suggested Resources: a calendar in Braille and print , a time table in print and Braille

Suggested Formative Assessment rubrics

Exceeding expectations	Meeting expectations	Approaching expectations	Below expectations
Correctly and consistently relates daily activities to time ,relates days of the week with various activities, recites days of the week .	Relates daily activities to time ,relates days of the week with various activities, recites days of the week .	Inconsistently relates daily activities to time ,relates days of the week with various activities, recites days of the week.	Has major inaccuracies relating daily activities to time, relating days of the week with various activities, reciting days of the week.

MONEY

Strand	Sub-Strand	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
MEASUREMENT	2.5 Money; (SUGGESTED TIME:10 periods of 35 minutes each)	Learner to a) Identify Kenyan currency coins and notes up to ksh.50 to differentiate currencies[k] b) Relate money to goods and services up to ksh.50 to use currencies in daily activities[s] c) Differentiate between needs and wants to use money appropriately[s] d) Appreciate spending and saving in day to day life.[a]	<ul style="list-style-type: none"> • i) In pairs or groups or as individuals learners could sort out Kenyan currency notes and coins according to their value.....up to ksh.50 (different coins for sh.1) (copper, silver (small+big) sh.5 (pentagon, silver Sh.10 – 1 Sh.20 – 1 Sh.40 – 1 Sh.50 note ii) Learners could be guided to put coins together according to their value and the sh.50 note separately • i) In pairs or in groups learner could be guided to tell own experiences in relation to shopping activities ii) Learner could be guided to tell the value of items in the classroom shop up to ksh.50 • i) In pairs or in groups learners could discuss items or things they cannot do without and those that are necessary but they can do without them ii) In groups or in pairs learners could classify needs and wants • i) Learners could be guided to identify saving as keeping aside some money 	<ol style="list-style-type: none"> 1.How much is a pencil 2.how do we differentiate coins? 3.how dowe differentiate notes/ 4.what do younlike buying?

Strand	Sub-Strand	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
			for future use <ul style="list-style-type: none"> • ii) Learners could be guided to talk about spending as buying goods and services – needs and wants • Learners can role play buying and selling items from the classroom shop 	
Core Competences to be developed: Communication and collaboration as they talk about money in groups, critical thinking and problem solving as they compare money,				
Link to PCIs: ESD: Financial literacy as they talk about needs and wants			Link to Values: Respect, Responsibility	
Links to other subjects : Languages Activities, Environmental Activities, Braille Literacy			Suggested Community Service Learning activities: visit a market and observe buying and selling of goods and services	
Suggested Non formal Activity to support learning: role plays buying and selling during recess at the classroom shop. Suggested resources; play money made on Braille cards and paper real money in 50 shilling note and 1,5,10,20,40, shilling coin, classroom shop.			Suggested assessment: Oral questions, portfolio, observation	

Suggested Formative Assessment Rubric

Exceeding expectations	Meeting expectations	Approaching expectations	Below expectations
Correctly identifies Kenya currency coins and notes beyond ksh 100, relates money to goods and services,	Correctly identifies Kenya currency coins and notes up to ksh. 100, relates money to goods and services,	Correctly identifies Kenya currency coins and notes up to ksh. 100, relates money to goods and services,	Has major inaccuracies in identifying Kenya currency coins and notes up to ksh 100, has challenges in relating

differentiates between needs and wants, explains meaning of spending and saving in real life situations correctly identifies Kenya currency coins and notes beyond ksh 100.	differentiates between needs and wants, explains meaning of spending and saving in real life situations	differentiates between needs and wants, explains meaning of spending and saving in real life situations with assistance	money to goods and services, differentiating between needs and wants, explaining meaning of spending and saving in real life situations
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GEOMETRY

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes (ensure you cover knowledge (k), skills (s) and attitudes (a))	Suggested Learning Experiences (align to the level competency descriptors)	Key Inquiry Question(s)
3.0GEOMETRY	3.1LINES; (SUGGESTED TIME:10 periods of 35 minutes each)	Learner to; a) Identify straight and curved lines and objects to use lines in daily activities b) Draw, trace, or model straight and curved lines to determine shapes. c) Appreciate the use of lines in	<ul style="list-style-type: none"> Learners could be asked to form groups and choose a leader and be encouraged to cooperate and appreciate the qualities of leadership displayed. Learner could be guided to stand two points behind one another as they face the same side tell what they have formed. 	What types of lines are there?

		<p>geometry.</p>	<ul style="list-style-type: none"> • In pairs or in groups learners could be guided to place two raised marks on the ground and then fix a rope or draw a line joining the two points using a stick to come up with a straight line. Teacher to explain the safety as they draw the lines and fix the ropes. • Learners could practice drawing straight lines on the ground [low vision]and hold straight ropes across two points. • In groups and pairs learner could be guided to form a semi-circle and one of them to draw a line along the semi-circle formed and walk along the curve repeatedly .Teacher explains this shape as a curved line. • Learners could practice drawing curved lines on the ground and manipulate curved objects. • Learners may visit a water 	
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			selling kiosk to observe how the containers are arranged <ul style="list-style-type: none"> Learners could recite a poem about straight and curved lines 	
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Core Competences to be developed: Communication and collaboration, critical thinking and problem solving, digital literacy.

Link to PCIs: ESD: Financial literacy as they keep learning materials safely for future use.	Link to Values: Respect, Responsibility
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Links to other subjects : Languages, Nutrition and Hygiene	Suggested Community Service Learning activities: visiting citizens
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Suggested Non formal Activity to support learning:	Suggested assessment: Oral questions, portfolio, observation
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Suggested Resources; Manila paper, a pair of scissor, biscuits, circular and rectangular cut outs, large print exercise books pencils Braille paper slate stylus types type board cubes cuberithms rubber ,Braille card, flash cards, strings pieces of wire

Suggested Formative Assessment Rubric

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Correctly draws straight and curved lines and even makes patterns using the curved and straight lines	Correctly draws straight and curved lines	Inaccurately draws straight and curved lines	Major inaccuracies in drawing straight and curved lines

STRAND GEOMETRY	Sub-strand/Theme/Topic/ Suggested time	Specific Learning Outcomes (ensure you cover knowledge (k), skills (s) and attitudes (a))	Suggested Learning Experiences (align to the level competency descriptors)	Key Inquiry Question(s)
	3.2SHAPES; (Suggested time:10 periods of 35 minutes each)	Learner to; a) Identify rectangles, circles and triangles to make patterns b) Make patterns involving rectangles, circles and triangles design c) Appreciate the beauty of patterns	<ul style="list-style-type: none"> • Learners could be asked to form groups and choose a leader and encouraged to cooperate and the qualities of leadership displayed. • The learners could be asked to sort and group shapes using one attribute. • In pairs or in groups learner could be guided to tell properties of the shapes in the various groups. Teacher to discuss the properties further and gives names of the shapes. 	What shapes 1.can you identify in your school?

			<ul style="list-style-type: none"> • Learners to identify and name the different shapes found in their classroom. • Learners could work individually to make patterns of their choice using the three shapes. • In pairs or in groups learners could make patterns, colour them[low vision] show other groups. 	

Core Competences to be developed: Communication and collaboration, critical thinking and problem solving, digital literacy.	
Link to PCIs: ESD: Safety: as they use cutting tools.	Link to Values: Respect, Responsibility
Links to other subjects : Languages, Nutrition and Hygiene	Suggested Community Service Learning activities: visiting older citizens and assist in cleaning and arranging the home.
Suggested Non formal Activity to support learning: making	Suggested assessment: Oral questions, portfolio, observation

circles as they sing.	
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Suggested Resources; Manila paper, a pair of scissor, biscuits, circular and rectangular cut outs, large print exercise books pencils Braille paper slate stylus types type board cubes cuberithms rubber place value chart in large print ,Braille card, flash cards,

Suggested Formative Assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Correctly identify shapes and makes patterns using rectangles, circles and triangles and also makes the oval shape.	Correctly identifies shapes and makes patterns using rectangles, circles and triangles	Inaccurately identifies shapes and makes patterns using rectangles, circles and triangles	Major inaccuracies in identification of shapes and making patterns using rectangles, circles and triangles

KENYA INSTITUTE OF CURRICULUM DEVELOPMENT

CURRICULUM DESIGNS

ADAPTED MATHEMATICS

FOR

LEARNERS WITH VISUAL IMPAIREMENT

GRADE 2

LOWER PRIMARY MATHEMATICS DRAFT: Curriculum Design GRADE 2

NUMBERS

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes (ensure you cover knowledge (k), skills (s) and attitudes (a))	Suggested Learning Experiences (align to the level competency descriptors)	Key Inquiry Question(s)
1.0NUMBERS	1.1NUMBER CONCEPT; (SUGGESTED TIME: 8 periods of 35 minutes each)	Learner to; a) Read numbers 1-100 in symbols to reinforce number concept b) Represent numbers 1-100 using concrete objects for number recognition c) Appreciate the use of concrete objects in counting.	<ul style="list-style-type: none"> • Learners could say number names from 1-100 • In groups of 5 count their fingers and toes. • In pairs or in groups learner could be guided to play games of representing numbers 1-100 using concrete objects as they talk about about the safety of the objects • Learners could sing a song while counting concrete objects 	1.How can we find the number of objects in a group?

Core Competences to be developed: Communication and collaboration as learners discuss in groups, critical thinking and problem solving as they play games of representing numbers 1-100, self efficacy as they confidently count numbers 1-100.	
Link to PCIs: ESD: DRR: Safety observe personal safety as they play games of representing numbers using concrete objects.	Link to Values: Respect, Responsibility
Links to other subjects : Languages, Nutrition and Hygiene environmental activities	Suggested Community Service Learning activities: visit a nearby workshop and collect sticks for counting.
Suggested Non formal Activity to support learning: learners count and say number of trees in the school compound.	Suggested assessment: Oral questions, observation.

Suggested Resources: *Bottle tops, Marbles, Sticks, Stones, Grains. Pegboards slate stylus pencils books Braille paper pegs cubes and cubrithms*

Suggested Formative Assessment Rubric

Exceeds expectations	Meets expectations	Approaches expectations	Below expectations
Learner is able to read numbers 1-100 and represent numbers 1-100 using concrete objects and even beyond 100	Learner is able to read numbers 1-100 and represent numbers 1-100 using concrete objects	Learner inconsistently reads numbers 1-100 and represent numbers 1-100 using concrete objects.	Learner has major challenges in reading numbers 1-100 and representing numbers 1-100 using concrete objects

NUMBERS:

Strand	Sub-strand/Theme/Topic	Specific Learning	Suggested Learning Experiences (Key Inquiry
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	(Suggested time)	Outcomes (ensure you cover knowledge (k), skills (s) and attitudes (a))	align to the level competency descriptors)	Question(s)
NUMBERS	1.2WHOLE NUMBERS; SUGGESTED TIME: (20 periods of 35 minutes each)	<p>Learners to;</p> <p>a)Count from 1-100 by;</p> <p>i. Counting in 2's forward and backward starting at any point.</p> <p>ii. Counting in 5's forward and backward starting at any point.</p> <p>iii. Counting in 10's forward and backward starting at any point to reinforce ordering of numbers.</p> <p>b) Identify place value up to hundreds to record digits correctly.</p> <p>c) Read numbers 1-100 in symbols to distinguish</p>	<ul style="list-style-type: none"> Learners could be encouraged to cooperate as they learn in groups and appreciate the qualities of leadership displayed as they take turns In pairs or in groups learners could count in 2's forward and backward. One member says out aloud the starting at any point. In pairs or in group learners count in 5's forward and backward. One member says out loud the starting at any point. In pairs or in groups learners could be guided to use concrete objects to count, their fingers and toes to count , in 2's forward and backward. One member says out aloud the starting at any point. In pairs or in groups learners could be guided to count their fingers and toes and count concrete objects in 10's forward and backward. One member 	<p>1 .how do we get the next number in a pattern ?</p> <p>2.how can we count backwards in 5s</p> <p>3.how can we spell the number the numbers one to twenty</p>

		<p>numbers</p> <p>d)Read numbers 1-20 in words to match number symbols to number names</p> <p>(e)Write numbers 1-20 in words to recall spellings</p> <p>f)Work out missing numbers in number patterns for sequencing</p> <p>g)Appreciate number patterns as they skip on the number line [learners with low vision]and place concrete objects on a tens frame</p>	<p>says out aloud the starting at any point.</p> <ul style="list-style-type: none"> • In pairs or in groups learners discuss place value of digits in given numbers up to hundreds • In pair or in groups learners could be guided to compete reading numbers 1-100 in symbols • Learners read and write numbers 1-20 in words • In pairs or in groups learners could make number patterns and share with other groups 	?
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Core Competences to be developed: Communication and collaboration, critical thinking and problem solving, self efficacy. Imagination and creativity.	
Link to PCIs: CITIZENSHIP: Leadership displayed in turn taking.	Link to Values: Respect, Responsibility, patience, sharing
Links to other subjects : Languages, Environmental activities Hygiene and Nutrition Activities Braille literacy Activities	Suggested Community Service Learning activities: visit a nearby farmer and offer to assist in collection of eggs and also observe counting and recording of number of eggs collected.
Suggested Non formal Activity to support learning: play games involving counting activities like skipping	Suggested assessment: Oral questions, observation

ropes for a number of times.	
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Suggested Resources : Braille paper, slate and stylus , peg boards , large print exercise books, pencils , *Bottle tops, Marbles, Sticks, Stones, Grains tens frame*

Suggested Formative Assessment Rubric

EXCEEDS EXPECTATIONS	MEETS EXPECTATIONS	APPROACHES EXPECTATIONS	BELOW EXPECTATIONS
Correctly counts from 1-100, identify place value up to hundreds, reads and writes in words and in symbols and works out missing numbers in number pattern up to 100 and beyond	Correctly counts from 1-100, identifies place value up to hundreds, reads and writes in words and in symbols and works out missing numbers in number pattern up to 100	Correctly counts from 1-100, identifies place value up to hundreds, reads and writes in words and in symbols and works out missing numbers in number pattern up to 100 with assistance.	Major inaccuracies in counting from 1-100, identifying place value up to hundreds, has challenges in reading and writing in words and symbols and working out missing numbers in number patterns up to 100.

FRACTIONS

Strand	Sub-strand/Theme/Topic	Specific Learning	Suggested Learning Experiences (Key Inquiry
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	(Suggested time)	Outcomes (ensure you cover knowledge (k), skills (s) and attitudes (a))	align to the level competency descriptors)	Question(s)
NUMBERS:	1.3 FRACTIONS; (SUGGESTED TIME: 12 periods of 35 minutes each)	Learner to; a) Make circular cut-outs to identify one whole. b) Identify $\frac{1}{2}$ as part of a whole to distinguish 2 equal parts c) Identify a $\frac{1}{4}$ as part of a whole to distinguish 4 equal parts d) Appreciate the use of fractions in equal sharing.	<ul style="list-style-type: none"> • In pairs or in groups Learners could be guided to make circular cut-outs or model circles • In pairs or in groups Learners could fold the circular cut-outs or models into two equal parts • Learner could be guided to identify the fraction $\frac{1}{2}$ as a part of a whole. • In pairs or in groups Learners could be guided to make rectangular cut-outs or models and fold or break them into two equal parts to get a half of a whole. • In pairs or in groups Learners could be guided to fold or break the circular cut-outs or models into two equal parts and then fold/break another time to get 4 equal parts. Each part is $\frac{1}{4}$ of a whole. 	a) What are examples of whole things in our daily life? b) If two learners share a whole, how much will each get? c) How many halves were got from each whole? d) How can you make a $\frac{1}{2}$ from a circular paper cut –

			<ul style="list-style-type: none"> Learners could be guided to make rectangular cut – outs or to model and fold or break them into two equal parts and then fold or break another time to get 4 equal parts. Each part is a $\frac{1}{4}$ of a whole. In pairs or in groups learners could be guided to practise making halves and quarters of a whole. Learners could role play sharing different whole fruits in pairs or in groups of four. 	<p>out?</p> <p>e) How can you make a $\frac{1}{4}$ from a circular paper cut – out?</p> <p>f)</p>

Core Competences to be developed: Communication and collaboration as they make paper cut outs and model circular objects, critical thinking and problem solving in deviding whole ito halves and quarters,	
Link to PCIs: CITIZENSHIP: Leadership: as they make cut outs in groups, ESD : DRR : Safety as they work with cutting tools.	Link to Values: Respect, Responsibility. Patience, sharing, cooperation
Links to other subjects : Languages, Nutrition and Hygiene Braille Literacy Activities	Suggested Community Service Learning activities: visit the staffroom and share oranges in quarters amongst the teachers.
Suggested Non formal Activity to support learning: shairing a loaf of bread amongst 4 or 2 learners.	Suggested assessment: Oral questions , observation

Suggested Resources : Braille paper, slate and stylus , peg boards , large print exercise books, pencils , cubes and cuberithms ,types and type frame Bottle tops, Marbles, Sticks, Stones, Grains. Paper cut outs plasticine clay

Suggested Formative Assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Correctly identifies $\frac{1}{2}$ and $\frac{1}{4}$ and more fractions as part of a whole and even identifies $\frac{1}{8}$	Correctly identifies $\frac{1}{2}$ and $\frac{1}{4}$ and more fractions as part of a whole	Correctly identifies $\frac{1}{2}$ and $\frac{1}{4}$ as part of a whole with assistance.	Major inconsistencies in identifying $\frac{1}{2}$ and $\frac{1}{4}$ as part of a whole.

ADDITION

Strand/Sub-Strands	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
NUMBER:	1.4ADDITION: (SUGGESTED TIME:20 periods of 35 minutes each)	<p>Learner to;</p> <p>a) Add a 2 digit number to a 1 digit number without regrouping</p> <ol style="list-style-type: none"> 1. vertically 2. horizontally 3. by counting on 4. by using a number line [low vision]and tens frame [blind] to compute accurately. <p>b) Work out problems involving addition of 3-single digit numbers up to a sum of 20 to develop accuracy.</p> <p>c) Work out problems involving addition of a 2-digit number to a 1-digit number with regrouping by:</p>	<ul style="list-style-type: none"> • In pairs, learners could be guided to arrange numbers vertically according to place value (ones and tens aligned appropriately) • Learners to guided to go out and collect assorted and safe lobjects to use them in pairs or in groups to solve mathematical statements involving 3-single digit numbers • In pairs or in groups learners practice breaking numbers apart to make a 10. 	<ul style="list-style-type: none"> • How can we align a 2-digit number and a 1-digit number vertically in order to add? • How can we add a 3-digit number? • How can we add 2-single digit number to make a 10? • What is regrouping?

Strand/Sub-Strands	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
		1. breaking a ten 2. counting on 3. arranging vertically to determine place value concept. d) Add a 2-digit number to a 2-digit number without and with regrouping, with sums not exceeding 100 to compute accurately. e) Workout missing numbers in number patterns involving numbers up to 100 to identify correct ordering of numbers f) Appreciate the use of addition of a 2digit number to a1 digit number in day life situations.	<ul style="list-style-type: none"> • Learners could be guided to add a 2-digit number to a 2-digit number by making a ten • In pairs learners come up with different modes/ways of adding a 2-digit number to 2-digit number. • Learners could be guided to add a 2-digit number to a 2-digit number without and with regrouping • Learners could be guided to work in groups in making patterns using numbers up to 100 	

Core Competences to be developed: Communication and collaboration, critical thinking and problem solving, digital literacy.	
Link to PCIs: CITIZENSHIP: Leadership: as they take turns in groups ESD: DRR: safety in collecting real objects	Link to Values: Respect, Responsibility, patience, cooperation, sharing

Links to other subjects : Languages, Nutrition and Hygiene, Braille literacy	Suggested Community Service Learning activities: visit a nearby farm and assist in collecting farm produce as they observe and participate in counting eggs chicken, sheep or any other farm produce.
Suggested Non formal Activity to support learning: counting as they participate in skipping or throwing games and say how many times each learner has skipped	Suggested assessment: Oral questions, observation, written exercise

Suggested Resources : Braille paper, slate and stylus , peg boards , large print exercise books, pencils , cubes and cuberithms ,types and type frame *Bottle tops, Marbles, Sticks, Stones, Grains tens frame.*

SUGGESTED FORMATIVE ASSESSMENT RUBRICS

Exceeding expectations	Meeting expectations	Approaching expectations	Below expectations
Adds up to a 2 digit numbers without regrouping, add up to 3 single digit numbers involving missing numbers and work out missing numbers in number pattern up to 100 and beyond.	Adds up to a 2 digit numbers without regrouping, add up to 3 single digit numbers involving missing numbers and work out missing numbers in number pattern up to 100.	Adds up to a 2 digit numbers without regrouping , add up to 3 single digit numbers involving missing numbers in number patterns up to 100 with assistance	Major inaccuracies in adding up to a 2 digit number without regrouping, has challenges in adding numbers involving missing numbers in number patterns

SUBTRACTION

Strand	Sub-Strand	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
NUMBERS	1.5SUBTRACTION;	Learners to;	<ul style="list-style-type: none"> Learners could be guided 	a) How can we make

	<p>(SUGGESTED TIME: 20 periods of 35 minutes each)</p>	<p>a) Subtract up to 2 digit numbers without borrowing to determine correct outcome. b) Subtract up to 2 digit numbers involving missing numbers c) Work out missing number patterns up to 100 to recognize ordering of numbers. d) Appreciate the use of subtraction in their day to day life.</p>	<p>to compare groups of objects arranged on the teachers table.</p> <ul style="list-style-type: none"> • Learners could be guided to align digits according to place value, and work out subtraction problems vertically and horizontally. • i) Learners be guided to find missing numbers in subtraction sentences using number families. ii) In pairs Learners could be guided to talk about situations in familiar practical contexts that have missing subtraction sentences • Learners could be guided on how to discover the pattern by subtraction • Learners could sing a song about subtraction sentences 	<p>the following pairs of groups same? b) How can we align the following questions according to place value and work out their answers? c) How do you find missing numbers in a subtraction question? d) In pairs discuss and come up with story problems involving missing subtraction e) How do you identify the missing number in pattern?</p>
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Core Competences to be developed: Communication and collaboration as they interact with one another while solving subtraction problems in groups,, critical thinking and problem solving in real life situation filling in missing numbers in number patterns,

Link to PCIs: ESD: SAFETY: as they go out to collect assorted objects, environmental education as they collect dead sticks	Link to Values: Respect, Responsibility ,cooperation patience
Links to other subjects : Languages, Nutrition and Hygiene, Environmental activities Braille Literacy	Suggested Community Service Learning activities: participating in community activities during cleaning of the environment.
Suggested Non formal Activity to support learning: moving a certain number of small chairs from one room to another room.	Suggested assessment: Oral questions, observation, written work

Suggested Resources : Braille paper, slate and stylus , peg boards , large print exercise books, pencils , *Bottle tops, Marbles, Sticks, Stones, Grains tens frame*

Suggested formative assessment rubrics

Exceeds Expectations	Meets Expectations	Approaching Expectations	Below Expectations
Subtracts up to 2 digit numbers without regrouping, subtract up to 2 digit numbers involving missing numbers, and work out missing numbers in number pattern up to 100 and beyond	Correctly subtracts up to 2 digit numbers without regrouping, subtract up to 2 digit numbers involving missing numbers, and work out missing numbers in number pattern up to 100	Inconsistently subtracts up to 2 digit numbers without regrouping, subtract up to 2 digit numbers involving missing numbers, and work out missing numbers in number pattern up to 100 with assistance.	Major inaccuracies in subtracting up to 2 digit numbers without regrouping, has challenges in subtracting up to 2 digit numbers involving missing numbers, and working out missing numbers in number pattern up to 100.

MULTIPLICATION

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
NUMBERS	1.6Multiplication;	Learner to;	<ul style="list-style-type: none"> Learners could be guided 	a) If I wash four

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
	(SUGGESTED TIME:11 periods of 35 minutes each)	e) Represent multiplication as repeated addition involving numbers 1, 2, 3, 4 and 5 up to five times to associate with putting together (s) f) Use the multiplication symbols both in Braille and large print correctly in writing multiplication sentences to compute and get the outcome (k) g) Multiply single digit numbers by 1, 2, 3, 4, 5 and 10 to calculate the number of items (k). h) Appreciate the use of multiplication in solving mathematical problems.	to put bottle tops in 5 groups of 1 in each group to show 5 bottle tops in one row remain 5. <ul style="list-style-type: none"> • Learners could be asked to put oranges in 2 groups of 3 each to show 3 oranges in 2 rows make 6 • In pairs or in groups learners could be asked to put mathematics textbooks in 3 groups of 4 textbooks in each group and count the total number of books. • Learners could be guided to use a number line on the ground to make equal steps a number of times up to 5' while learners who are blind make strides of equal steps on a marked line with clear land marks a number of times up to 5. • Learners could be asked to write the results of the different repeated addition activities. • The teacher to introduce 	groups of three oranges each, how many oranges have I washed? b) Ann made five jumps each of two steps on the number line. How many steps did she jump altogether? c) If we do two exams each term, how many exams shall we do in one year? d) What is $3+3+3+3$?

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
			<p>the “x” sign both in Braille and large print.</p> <ul style="list-style-type: none"> • Learners to be guided to write multiplication sentences using the multiplication sign • Learners could be asked to visit the local market with the teacher to see and touch fruits arranged in groups of 10, 5 or 4 a certain number of times • Learners could be guided to multiply single digit numbers by 1, 2, 3, 4, 5 and 10 using repeated addition • Learners could sing a song on multiplication 	

Core Competences to be developed: Communication and collaboration, critical thinking and problem solving, self efficacy.	
Link to PCIs: LIFE SKILLS AND VALUES EDUCATION: Values: self confidence as they make strides	Link to Values: Respect, Responsibility ,self confidence
Links to other subjects : Languages, Nutrition and Hygiene environmental Activities Braille Literacy	Suggested Community Service Learning activities: visit a market stall and participate in laying out fruits in 2s 3s 4s 5s and 10s

Suggested Non formal Activity to support learning: arrange items in the classroom cupboard in 2s3s 4s 5s and 10s	Suggested assessment: Oral questions, observation, written exercise.
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Suggested Resources : Braille paper, slate and stylus , peg boards , large print exercise books, pencils , *Bottle tops, Marbles, Sticks, Stones, Grains tens frame*

Suggested formative assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Correctly does multiplication correctly as repeated addition uses multiplication sign, multiplies single digit numbers by 1, 2, 3, 4, 5, and 10 and goes beyond	Multiplies as repeated addition, uses multiplication sign, multiplies single digit numbers by 1, 2, 3, 4, 5 and 10	Inconsistently multiplies as repeated addition, uses multiplication sign, multiplies single digit numbers by 1, 2, 3, 4, 5 and 10 with assistance	Has major inaccuracies in performing multiplication as repeated addition, using multiplication sign, multiplying single digit numbers by 1, 2, 3, 4, 5 and 10

DIVISION

Strand	Sub-Strand	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
NUMBERS	1.7Division; (SUGGESTED TIME: 8 periods of 35 minutes each)	Learners to; a) Represent division as equal sharing in real life situation. b) Apply and use “ ÷ “sign in large print and	<ul style="list-style-type: none"> In pairs or in groups learners could be guided to share a given number of objects equally by each picking an object at a 	a) How do you make sure objects are shared equally? b) How do you make sure the groups are equal?

		<p>Braille to write division sentences</p> <p>c) Divide numbers up to 25 by 2, 3, 4 and 5 without a remainder in real life situation</p> <p>d) Appreciate the use of division in their day to day life.</p>	<p>time until all are finished.</p> <ul style="list-style-type: none"> • Learner could be guided to count how many each got • Learners could be guided to make division statements like 12 books shared equally by 4 each will get 3 books. • In pairs or groups learners could be guided to form groups of objects by picking an equal number of objects from the main group at a time and count the number of equal groups formed • Learners could be guided to tell that in a group of 20 objects there are 4 groups of 5 objects each • In pairs or in groups learners could be guided to share a number of items equally and count how many items each has got. • Learners could be guided to use the division sign (\div) to write division sentences e.g. 	<p>c) How do you write a division sentence?</p>
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			<p>15 bananas shared among 3 learners equal to 5. So we have $15 \div 3 = 5$</p> <ul style="list-style-type: none"> In pairs or in groups learners to divide up to 25 by 25. In real life situation e.g. a string or wire 18m long is shared equally among 3 learners. What length of wire does each pupil get? 	
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Core Competences to be developed: Communication and collaboration, critical thinking and problem solving, digital literacy.	
Link to PCIs: CITIZENSHIP : social cohesion; honesty when sharing LIFE SKILLS: values; ability to work in groups.	Link to Values: Respect, Responsibility
Links to other subjects : Languages, Nutrition and Hygiene Environmental Activities, Braille Literacy	Suggested Community Service Learning activities: learners could share seedlings amongst themselves equally to go and plant at home
Suggested Non formal Activity to support learning: share Braille papers amongst themselves or shair books among themselves	Suggested assessment: Oral questions, written exercise, observation

Suggested Resources : Braille paper, slate and stylus , peg boards , large print exercise books, pencils , *Bottle tops, Marbles, Sticks, Stones, Grains tens frame*

Suggested formative assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Correctly does division as equal sharing and equal grouping, use division sign, divides numbers up to 25 by 2, 3, 4, and 5 without a remainder and goes beyond	Correctly does division as equal sharing, equal grouping, use division sign, divides numbers up to 25 by 2, 3, 4 and 5 without a remainder	Consistently does division as equal sharing, equal grouping, use division sign divides numbers up to 25 by 2, 3, 4 and 5 without a remainder with assistance.	Has major inaccuracies in doing division as equal sharing and equal grouping use of division sign, has challenges in dividing numbers up to 25 by 2, 3, 4, and 5 without a remainder

MEASUREMENT

LENGTH

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
2.0MEASUREMENT	2.1Length; (SUGGESTED TIME: 6 periods of 35 minutes each)	Learner to; a) Measure length using fixed units to show their real length b) Identify the metre as a unit of measuring length to use in measurement in real life situations. c) Use a metre rule to measure length in metres. d) Appreciate the	<ul style="list-style-type: none"> Learner could be guided to identify sticks of equal length In pairs or in groups learners could be guided to measure the length of one side of the classroom wall or chalkboard or teachers table using sticks Learners could talk about the results and realise that all groups will have approximately the same results when measuring using the same object <ul style="list-style-type: none"> learners could be guided to make a metre stick 	a) Which are some of the objects we can use to measure the teachers table? b) How do we measure the chalkboard using a metre stick? c) How can we measure the height of leaners in class?

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
		measuring length in metres.	<ul style="list-style-type: none"> • learners could be guided to measure different lengths using sticks of different length, one of the sticks should measure 1 metre • Learners could be provided with strings of 5 metre. • Learners could be guided to use the string to measure long distances. • In pairs or in groups learners could be guided to use the metre sticks to measure various distances in class e.g. chalkboard, classroom walls teacher's table etc. • Learners to record the measurement of different areas measured. • learners could talk about accuracy in measuring, avoiding overlapping when measuring, leaving gaps when measuring, manipulation of the measuring stick and counting steps. 	

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
			<ul style="list-style-type: none"> Learners could sing a song as they measure different objects. 	

Core Competences to be developed: Communication and collaboration while working in groups, critical thinking and problem solving when discussing various results, imagination and creativity when making meter sticks , self efficacy during discussions.	
Link to PCIs: ESD; Safety; as they make measuring sticks.	Link to Values: Respect, Responsibility sharing
Links to other subjects : Languages, Nutrition and Hygiene Environmental Activities ,Braille Literacy	Suggested Community Service Learning activities: Visit one of their homesteads and assist in measuring length during building of chicken or rabbit cages.
Suggested Non formal Activity to support learning: measure and mark their playground.	Suggested assessment: Oral questions, written exercise, observation

Suggested Resources : Braille paper, slate and stylus , peg boards , large print exercise books, pencils , *Bottle tops, Marbles, Sticks, long sticks metre rule.*

Suggested formative assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Measure length using fixed units, identify metre as a unit of measuring length and measure length in metres and beyond	Correctly measure length using fixed units, identify metre as a unit of measuring length and measure length in metres	Inconsistently measure length using fixed units, identify metre as a unit of measuring length and measure length in metres with assistance.	Major inaccuracies measure length using fixed units, identify metre as a unit of measuring length and measure length in metres

MASS

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
MEASUREMENT	2.2MASS; (SUGGESRED TIME: 6 periods of 35 minutes each)	Learner to; a) Measure mass using fixed units b) Identify the kilogram as a unit of measuring mass c) Measure masses of different items in kilograms d) Appreciate the use of kilogram as a unit of measuring mass	<ul style="list-style-type: none"> • Learners could be guided to collect items to use in an activity of measuring mass • In pairs or in groups learners could be guided to select an item from the assorted objects collected e.g. a textbook and use it to measure against other items using the beam balance • Learners to be provided with an item equivalent to 1 kilogram mass to measure against the items • Each learner could be guided to use the mass provided to come up with an equivalent mass of I kilogram • Learners talk about the kilogram as a unit of measuring mass. • Learner could be guided to measure different objects using a kilogram mass. • Learners could be directed to identify many other items of a kilogram mass in and out of the classroom • Learners could recite poems 	<ul style="list-style-type: none"> a) How can you tell the mass of an item or items? b) How many grade two mathematics textbooks can make a mass of 1 kilogram? c) Which three items in the classroom measure 1 kilogram d) Which three item out of the classroom measure 1 kilogram?

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
			about the kilogram as a unit of measuring mass.	

Core Competences to be developed: Communication and collaboration when collecting items for measuring mass , critical thinking and problem solving when using a beam balance to measure objects and find an equivalent measure of 1 kilogram, imagination and creativity when measuring mass.	
Link to PCIs: ESD: DRR: when handling learning materials. Safety when using the beam balance to measure	Link to Values: Respect, Responsibility ,commitment
Links to other subjects : Languages, Nutrition and Hygiene, Environmental Activities, Braille Literacy	Suggested Community Service Learning activities: visiting elderly citizens and assist in carrying firewood.
Suggested Non formal Activity to support learning: playing back to back lifting in the playground.	Suggested assessment: Oral questions, written exercise, observation

Suggested Resources : Braille paper, slate and stylus , peg boards , large print exercise books, pencils , *Bottle tops, Marbles, Sticks, Stones, Grains tens frame beam balance*

Suggested formative assessment rubrics

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Measure mass using fixed units, recognize and identify the kilogram as a unit of measuring mass and measure mass kilograms and beyond	Measure mass using fixed units, recognize and identify the kilogram as unit of measuring mass and measure mass in kilograms	Measure mass using fixed units, recognize and identify the kilogram as unit of measuring mass and measure mass in kilograms with assistance.	Major inaccuracies in measuring mass using fixed units. Has challenge in recognizing and identifying the kilogram as a unit of measuring and measuring mass in kilograms.

CAPACITY

Strand/Sub-Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
MEASUREMENT	2.3CAPACITY; SUGGESTED TIME:8 periods of 35 minutes each)	Learner to; a) Measure capacity using fixed units to discover how much they hold. b) Identify the litre as a unit of measuring capacity in liquids. c) Measure capacity of different containers in litres. d) Appreciate the use of the litre as a unit of measuring capacity.	<ul style="list-style-type: none"> • Learners could be guided to collect safe containers of different capacities for use in class • Learners could be guided to get containers of equal sizes (same capacity) together to use them for measuring • Learners could be guided to identify a 1 litre container • Learners could be guided to fill in a bucket using a mug and count how many such mugs would be used to fill in the bucket • Learners could be asked to work in groups or pairs to fill in a bucket using 1 litre container and identify how many litres are used to fill in the jug • Learners could record their results and talk about containers that can hold a litre • Learners could be 	<ul style="list-style-type: none"> a) How many small containers were used to fill in the bucket? b) How many litres of water can this bucket hold? c) How many 1 litre containers can be used to this in this bucket?

Strand/Sub-Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
			<p>encouraged to work in groups and measure capacity in litres</p> <ul style="list-style-type: none"> Learners could sing a song while filling containers. 	

<p>Core Competences to be developed: Communication and collaboration in working together to measure different capacity, critical thinking and problem solving in identifying a 1litre container ,</p>	
<p>Link to PCIs: CITIZENSHIP: Social cohesion when working together, ESD; DRR; Safety when using clean containers and water to measure capacity.</p>	<p>Link to Values: Respect, Responsibility, commitment, honesty, sharing</p>
<p>Links to other subjects :Languages, Nutrition and Hygiene Activities, Braille Literacy</p>	<p>Suggested Community Service Learning activities: visit any nearby old grandparent and help to fetch water.</p>
<p>Suggested Non formal Activity to support learning: water the newly planted tree seedlings or vegetables</p>	<p>Suggested assessment: Oral questions, observation.</p>

Suggested Resources : Braille paper, slate and stylus , peg boards , large print exercise books, pencils , *buckets bottles jerricans , water ,1 litre bottles, cups*

Suggested formative assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Measures capacity using fixed units, uses the litre as a unit of measuring capacity and measure capacity in litres correctly and beyond	Correctly measures capacity using fixed units, uses the litre as a unit of measuring capacity and measures capacity in litres	Inconsistently measures capacity using fixed units uses the litre as a unit of measuring capacity and measures capacity in litres with assistance.	Has major inconsistencies when measuring capacity using fixed units – using the litre as a unit of measuring capacity in litres

TIME

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
MEASUREMENT	2.4Time; (SUGGESTED TIME:10 periods of 35 minutes each)	Learner to; a) Relate the months of the year with various activities in the school calendar. b) Use the calendar to identify number of days in each month of the year. c) Measure time using arbitrary units to estimate time taken in different activities d) Measure time using fixed unit to tell time taken in different activities. e) Identify the clock	<ul style="list-style-type: none"> • In pairs or in groups learners to discuss activities that take place in the month of the year • In pairs or in groups learners to sing songs or rhymes related to number of days in the months of the year • In pairs or in groups learners to be engaged in activities such as singing first verse of Kenya national anthem, reciting poem while others clap in unison, snapping of fingers and thumping of feet to tell duration • In pairs or in groups learners to sing the first verse of Kenya national anthem while 	1 Which month do you celebrate your birth day? 2 Which month do you have least number of days? 3. In which months do we have celebrations?

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
		<p>face and the digital clock to be use in telling time</p> <p>f) Read time on a clock face or digital clock by the hour</p> <p>g) Write time shown on a clock face or digital clock by the hour</p> <p>h) Appreciate use of the hour in carrying out day to day activities at the correct time</p>	<p>others clap and count number of claps up to the end of the verse and talk about how many claps were taken.</p> <ul style="list-style-type: none"> • Learners to recite poem while others conduct the claps until the end of the poem and talk about which takes longer or shorter time • Learners could be guided to discuss places where they have seen clocks displayed or heard talks about clocks as well as how they look like. • Learners could be guided to observe through touch a clock face provided and talk about both the minute hand and hour hand • In pairs or in group learners could talk about any other type of clock they have seen or touched. • Learners could observe the digital clock and discuss different features of the two types of the clock and tell that the digital clock shows time in 	

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
			hours. <ul style="list-style-type: none"> • Learners could listen to digital clock telling time. • Learners could be guided to discuss how to read time by the hour using both the analogue and digital clock • Learners could be guided to write time shown on both the clock face and the digital clock by the hour. • Learners could sing a song about different activities done at different times of the day. 	

Core Competences to be developed: Communication and collaboration in talking about different activities done at different times of the year, critical thinking and problem solving as they tell time by the hour., digital literacy as they tell time using the digital clock	
Link to PCIs: HEALTH EDUCATION: Personal Hygiene : as they daily routine.ESD: Environmental Education :as they sing about different seasons at different times of the year.	Link to Values: Respect, Responsibility Commitment
Links to other subjects : Languages, Nutrition and Hygiene Environmental activities Movement and creative activities Braille Literacy Activities	Suggested Community Service Learning activities: visit a nearby farm and assist in feeding chicken at the right time.
Suggested Non formal Activity to support learning:	Suggested assessment: Oral questions, written exercise, observation

keep time in their daily routine.	
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Suggested Resources : Braille paper, slate and stylus , peg boards , large print exercise books, pencils , Calendar digital clock face time table

Suggested formative assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaching Expectations	Below Expectations
Relate months of the year to various activities; identify number of days in each month. Measure time using arbitrary and fixed units, identify the minute and the hour hand in a clock face (analogue and digital) and read, tell and write time by the hour beyond	Correctly relate months of the year to various activities, identify number of days in each month. Measure time using arbitrary and fixed units, identify the minute and the hour hand in a clock face (analogue and digital) and read, tell and write time by the hour	Inconsistently relate months of the year to various activities, identify number of days in each month. Measure time using arbitrary and fixed units, identify the minute and the hour hand in a clock face (analogue and digital) and read, tell and write time by the hour with assistance	Major inaccuracies relating months of the year to various activities, identifying number of days in each month. Has challenges in measuring time using arbitrary and fixed units, identifying the minute and the hour hand in a clock face (analogue and digital) and reading, telling and writing time by the hour

MONEY

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
MEASUREMENT	2.5Money; (SUGGESTED	Learner to;	<ul style="list-style-type: none"> In pairs or in groups learners could to be guided to sort out 	1.How can you identify different

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
	TIME: 10 periods of 35 minutes each)	a) Identify Kenyan currency coins and notes up to kshs.100 to differentiate money. b) Count money in 1s, 5s, 10s, 20s, 40s and 50s up to kshs.100 to compute the total amount. c) Identify the equivalence of different denominations to show the total value. d) Relate money to goods and services up to ksh.100 to use in shopping activities e) Differentiate between needs and wants to use money appropriately f) Explain meaning of spending and saving money in real life situations g) Appreciate the use of	Kenyan currency notes and coins according to their attributes up to ksh.100 <ul style="list-style-type: none"> • Learners could be guided to put coins together and separately according to their value. The sh.50 and sh.100 notes • In pairs or in groups learners could be guided to count money in 1s, 5s, 10s, 20s, 40s, 50s and 100 up to sh.100 • In pairs or in groups learners could be guided to make different amounts of money by same or different coins and notes e.g. $ksh.20 = sh.10 + sh.10 = sh.10 + sh.5 + sh.5$ $Ksh.100 = sh.40 + sh.40 + sh.20$ • In pairs or in groups learners could be guided to use own experiences in relation to shopping activities • Learners and the teacher discuss the value of items in the classroom shop up to ksh.100 • In pairs or in groups learners could be guided to discuss items they cannot do without and 	Kenyan currency?

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
		money in day to day activities	<p>those that are necessary but they can do without them up to ksh.100</p> <ul style="list-style-type: none"> • In groups learners could be guided to classify needs and wants • Learners to talk about the importance of saving (keeping aside some money for future use) • Learners could be guided to discuss the how to save. • Learners be guided to role play buying and selling items from the classroom shop • Learners could sing a song about spending and saving 	

<p>Core Competences to be developed: Communication and collaboration in identifying different currencies , critical thinking and problem solving when doing shopping activities, imagination and creativity when relating value of goods to money. Learning to learn.</p>	
<p>Link to PCIs: PARENTAL ENGAGEMENT: Parental empowerment ;When involved in guiding learners on what to buy and what not to buy</p>	<p>Link to Values: Respect, Responsibility, honesty patience</p>
<p>Links to other subjects :Languages, Nutrition and Hygiene, Braille Literacy,</p>	<p>Suggested Community Service Learning activities: learners could visit elderly citizens and assist in buying some items for them.</p>
<p>Suggested Non formal Activity to support learning:</p>	<p>Suggested assessment: Oral questions, observation</p>

learners could tell stories about shopping experiences.	
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Suggested Resources : Braille paper, slate and stylus , peg boards , large print exercise books, pencils , Bottle tops, Marbles, Sticks, Stones, Grains tens frame different currencies 1 5 10 20 40shilling coins 50 and 100shilling notes. Classroom shop ,price list in print and Braille

Suggested formative assessment rubrics

Exceeds Expectations	Meet Expectations	Approaches Expectations	Below Expectations
Correctly identifies and counts money , states the value of money in different denominations, and spends money in shopping activities.	identifies and counts money , states the value of money in different denominations, and spends money in shopping activities	Inconsistently identifies and counts money , states the value of money in different denominations, and spends money in shopping activities	Has major challenges in identifying and counting money , stating the value of money in different denominations, and spending money in shopping activities

GEOMETRY: LINES

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes (ensure you cover knowledge (k), skills (s) and attitudes	Suggested Learning Experiences (align to the level competency descriptors)	Key Inquiry Question(s)
3.0GEOMETRY	3.1LINES; (SUGGESTED TIME: 6 periods of 35 minutes each)	Learner to; a) Draw and model straight and curved lines and place them against straight and curved objects. b) Appreciate the use of straight and curved objects in daily activities.	<ul style="list-style-type: none"> Learners could be guided to form groups and choose a leader and encouraged to cooperate and appreciate the qualities of leadership displayed as they take turns. Learners could be guided to draw curved and straight lines In pairs or in groups learners could be guided to model straight and 	1.What types of lines are there? 2.howdoes a line look like?

			<p>curved lines using plasticine or clay</p> <ul style="list-style-type: none"> • In pairs or in groups learners to be guided to use strings to fix straight and curved lines on cardboards with glue. • In groups learners could form straight and curved lines by holding their hands. • Learners could sing songs about straight and curved lines 	
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Core Competences to be developed: Communication and collaboration, critical thinking and problem solving, digital literacy.	
Link to PCIs: LIFESKILLS: Values: as they model using their hands	Link to Values: Respect, Responsibility, dedication, compassion
Links to other subjects : Languages, Nutrition and Hygiene Environmental Activities Braille Literacy	Suggested Community Service Learning activities: visiting older citizens to assist in sweeping the compound and observe circular and curved motions as they sweep
Suggested Non formal Activity to support learning: sing songs as they make curved and straight lines	Suggested assessment: Oral questions, observation

Suggested Resources : Braille paper, slate and stylus , peg boards , large print exercise books, pencils , *Bottle tops, Marbles, Sticks, Stones, Grains tens frame clay plasticine glue strings*

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
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Correctly draws and models straight and curved lines	Draws and models straight and curved lines	Correctly draws and models straight and curved lines with assistance	Major inaccuracies in drawing and modelling straight and curved lines
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Suggested Formative Assessment Rubric

STRAND	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes (ensure you cover knowledge (k), skills (s) and attitudes (a))	Suggested Learning Experiences (align to the level competency descriptors)	Key Inquiry Question(s)
GEOMETRY	3.2SHAPES; (SUGGESTED TIME: 6 periods of 35 minutes each)	Learner to; a) Identify rectangles, circles, triangles ovals and squares in the classroom. b) Make patterns using rectangles, circles, triangles, ovals and squares to make models c) Appreciate the use of shapes in creating different models.	<ul style="list-style-type: none"> Learners could be guided to form groups and choose a leader and encouraged to cooperate and appreciate the qualities of leadership displayed. The learners could be guided to sort and group shapes by manipulating using one attribute. In pairs or in group learners could be guided to discuss the properties of the various shape. Learners could be guided to identify and name the different shapes found in their 	What shapes can you identify in your school?

			<p>classroom.</p> <ul style="list-style-type: none"> • Learners could be guided to work individually to make patterns of their choice using the five shapes. • Learners in groups make patterns, colour them and share with other groups. • Learners could fit shapes in puzzles. 	
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Core Competences to be developed: Communication and collaboration, critical thinking and problem solving, digital literacy.	
Link to PCIs: ESD: safety :as they cut shapes,	Link to Values: Respect, Responsibility,
Links to other subjects : Languages, Nutrition and Hygiene Environmental Activities Braille Literacy. Movement and Creative Activities as they make patterns.	Suggested Community Service Learning activities: visit preschool classes and beautify the walls using made patterns.
Suggested Non formal Activity to support learning: plant flowers to make patterns.	Suggested assessment: Oral questions, portfolio observation

Suggested Resources : Braille paper, slate and stylus , peg boards , large print exercise books, pencils , *Bottle tops, Marbles, Sticks, Stones, Grains tens frame glue paper cut outs card boards a pair of scissors razor blade glue*

Suggested Formative Assessment Rubric

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Correctly identifies shapes and makes patterns involving rectangles, circles, ovals, squares and beyond	Correctly identifies shapes and makes patterns involving rectangles, circles, ovals, squares	Accurately identifies shapes and makes patterns involving rectangles, circles, ovals, squares with assistance	Has major inaccuracies in identifying shapes and making patterns involving rectangles, circles, ovals, squares

KENYA INSTITUTE OF CURRICULUM DEVELOPMENT

CURRICULUM DESIGNS

ADAPTED MATHEMATICS

FOR

LEARNERS WITH VISUAL IMPAIREMENT

GRADE 3

LOWER PRIMARY MATHEMATICS

DRAFT: CURRICULUM DESIGN GRADE 3

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes (ensure you cover knowledge (k), skills (s) and attitudes (a))	Suggested Learning Experiences (align to the level competency descriptors)	Key Inquiry Question(s)
1.0NUMBERS	<p>1.1NUMBER CONCEPT;</p> <p>(SUGGESTED TIME; 8 periods of 35 minutes each)</p>	<p>Learner to;</p> <p>a) Describe position of objects or persons using ordinal numbers from 1-20 [k]</p> <p>b) Place objects in correct ordinal positions in the classroom</p> <p>c) Appreciate use of ordinal numbers to position objects or themselves.</p>	<ul style="list-style-type: none"> • Learners could be encouraged to cooperate as they learn in groups and appreciate the qualities of leadership displayed as they take turns. • In pairs or in groups learners could be guided to arrange different items in order of size starting with the smallest • In groups learners could be guided to run for a distance and identify their position • In pairs or in groups learners could be guided to represent numbers 1-20 using similar objects like marbles and put the groups on a flat surface. • In groups learners could be guided to talk about the position of each group using the words first, second, third, 	<ol style="list-style-type: none"> 1. What position were you last term? 2. Who came before or after you? 3. How many brothers and sisters do you have? 4. How would you stand to receive presents?

			<p>up to 20th position</p> <ul style="list-style-type: none"> • Learners could be guided to run for a distance and identify their position using the words first, second, etc • In pairs or in groups learners could be guided to play games of representing numbers 1-100 using concrete objects • Learner could be guided to observe safety of self and the objects • Learners could sing songs that involve ordering of objects and other learners. 	
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Core Competences to be developed: Communication and collaboration, critical thinking and problem solving, learning to learn, self efficacy.	
Link to PCIs: ESD: DRR: as they collect assorted	Link to Values: Respect, Responsibility ,sharing,

objects within a safe environment.	
Links to other subjects : Languages, Nutrition and Hygiene, Environmental Activities Braille Literacy	Suggested Community Service Learning activities: visit the library and arrange items in a given order.
Suggested Non formal Activity to support learning: play hide and seek telling who will be found out first second and so on	Suggested assessment: Oral questions, written exercise, observation

Suggested Resources; Manila paper, a pair of scissor, biscuits, circular and rectangular cut outs, marbles, bottle tops, sticks, grains, stones large print exercise books, Braille papers brailons stylus slate types counting blocks pegs peg boards slate

Suggested Formative Assessment Rubric

Exceeding expectations	Meeting expectations	Approaching expectations	Below expectations
Learner is able to describe position using ordinal numbers from 1 to 50	Learner is able to describe position using ordinal numbers correctly from 1 to 20	Learner inconsistently describes position using ordinal numbers from 1to 20	Learner has major challenges in identifying positions using ordinal numbers from 1 to 20

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes (ensure you cover knowledge (k), skills (s) and attitudes (a))	Suggested Learning Experiences (align to the level competency descriptors)	Key Inquiry Question(s)
NUMBERS	1.2WHOLE NUMBERS (SUGESTED TIME; 20	Learner to; a) Count in i. 2's forward and backward starting at	<ul style="list-style-type: none"> Learners could be encouraged to cooperate as they learn in groups and appreciate the qualities of 	<ol style="list-style-type: none"> How would you count in 2s? How would

	<p>periods of 35 minutes each)</p>	<p>any point</p> <p>ii. 2. In 5's forward and backward starting at any point</p> <p>iii. 10's forward and backward starting at any point to form different number patterns.</p> <p>b) Identify place value up to hundreds on a place value chart or counting frame. [k]</p> <p>c) Reading numbers 1-100 in symbols on Braille and large print cards to enhance number recognition.</p> <p>d) Read numbers 1-20 in words on Braille and large print cards</p> <p>e) Write</p>	<p>leadership displayed as they take turns</p> <ul style="list-style-type: none"> • In pairs or in groups learners could be guided to count in 2's forward and backward. One learner could point out and also say aloud the starting at any point. • In pairs or in groups learners could count in 5's forward and backward. One learner points out and says out aloud the starting at any point. • In pairs or in groups learners could be guided to count their fingers and toes in 2's forward and backward. One learner points out and says out aloud the starting at any point. • In pairs or in groups learners could be guided to count their fingers and toes in 10's forward and backward. One learner points out or says out loud the starting at any point. 	<p>you count backwards?</p> <p>3.</p>
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		<p>numbers 1-20 in words to enhance spelling of number names.</p> <p>f) Work out missing numbers in number patterns</p> <p>g) Appreciate number patterns as they skip on the number line</p>	<ul style="list-style-type: none"> • In pairs or in groups learners could discuss place value of digits in given numbers up to hundreds • In pairs or in group learners could compete reading numbers 1-100 in symbols • Learners could read and write numbers 1-20 in words • In pairs or in groups learners could be guided to make number patterns and share with other groups • Learners could sing a song or recite a poem while counting whole numbers. 	
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Core Competences to be developed: Communication and collaboration, critical thinking and problem solving, digital literacy.	
Link to PCIs: CITIZENSHIP PANEL: Social cohesion as they work in groups. ESD: Safety as they work with assorted objects	Link to Values: Respect, Responsibility, Patience
Links to other subjects : Languages, Nutrition and Hygiene Activities Environmental Activities ,Braille Literacy	Suggested community Service Learning Activities: Learners could visit a nearby farm and assist in counting farm

	animals.
Suggested Non formal Activity to support learning:	Suggested assessment: Oral questions, portfolio, observation written exercise

Suggested Resources; Manila paper, a pair of scissor, biscuits, circular and rectangular cut outs, marbles, bottle tops, sticks, grains, stones large print exercise books pencils Braille paper slate stylus types type board cubes cuberithms rubber

Suggested Formative Assessment Rubric

Exceeds expectations	Meets expectations	Approaches expectations	Below expectations
Learner is able to count in 2s 5s and 10s forward and backwards starting at any point, identify place values of numbers up to hundreds, write numbers 1-20 in words and work out missing numbers in patterns accurately and consistently	Learner is able to count in 2s 5s and 10s forward and backwards starting at any point, identify place values of numbers up to hundreds write numbers 1-20 in words and work out missing numbers in patterns	Learner can count in 2s, 5s and 10s forward but has challenges in counting backwards starting at any point, can identify place values of numbers up to hundreds, write numbers 1-20 in words and work out missing numbers in patterns inconsistently.	Learner has major challenges in counting in 2s 5s and 10s forward and backwards starting at any point, and has major challenges to identify place values of numbers up to hundreds write numbers 1-20 in words and work out missing numbers in patterns

FRACTIONS

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes (ensure you cover knowledge (k), skills (s) and attitudes (a))	Suggested Learning Experiences (align to the level competency descriptors)	Key Inquiry Question(s)
NUMBERS	1.3FRACTIONS;	Learner to; a) Identify $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{8}$	<ul style="list-style-type: none"> In pairs or in group learners could be guided to fold the 	1) How can

	<p>(SUGESTED TIME; 10 periods of 35 minutes each.)</p>	<p>of a whole on paper cut outs fruits ,and biscuits . [k]</p> <p>b) Identify $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{8}$ as part of a group in sharing.[k]</p> <p>c) Compare $\frac{1}{2}$ $\frac{1}{4}$ $\frac{1}{8}$ shapes to distinguish their sizes</p> <p>d) Appreciate the use of fractions</p>	<p>circular cut – outs into 2 equal parts.</p> <ul style="list-style-type: none"> Learners could be guided to identify the fraction $\frac{1}{2}$ of the whole. In pairs or in groups learner could be guided to make rectangular cut – outs and fold them into 2 equal parts to get a half of a whole In pairs or in groups learner could be guided to fold the circular cut – outs into 2 equal parts and then fold another time to get 4 equal parts .Each part is $\frac{1}{4}$ of a whole. In pairs or in groups learner could be guided to make rectangular cut – outs and fold them into two equal parts and then fold another time to get 4 equal parts and a third time to get 8 equal parts. Each is a $\frac{1}{8}$ of a whole. In pairs or in groups learners could divide a number of objects into 2 equal groups 	<p>you represent a half, a quarter or an eighth of a group?</p> <p>2) How many parts do you get from a whole?</p> <p>3) How do you write a fraction</p>
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			<ul style="list-style-type: none"> • Learner could state that each of group represents $\frac{1}{2}$ • In pairs or in groups learner could be guided to divide a number of objects into 4 equal groups and state that each of the groups represents a $\frac{1}{4}$ of the whole group. • In pairs or in groups learner could divide a number of objects into 8 equal groups and state that each of the groups represents a $\frac{1}{8}$ of the whole group 	
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Core Competences to be developed: Communication and collaboration, critical thinking and problem solving, imagination and creativity self efficacy.	
Link to PCIs: LIFE SKILLS: Values: patience as they make fractions out of wholes.	Link to Values: Respect, Responsibility, Patience
Links to other subjects: Languages, Nutrition and Hygiene Activities Environmental Activities, Braille Literacy.	Suggested Community Service Learning activities: assisting in sharing foodstuffs in community celebrations.
Suggested Non formal Activity to support learning: share fruits in quarters halves	Suggested assessment: Oral questions, written exercise, observation

Suggested Resources; Manila paper, a pair of scissor, biscuits, circular and rectangular cut outs, marbles, bottle tops, sticks, grains, stones large print exercise books pencils Braille paper slate stylus types type board cubes cuberithms rubber

SUGGESTED FORMATIVE ASSESSMENT RUBRIC

Exceeds expectations	Meets expectations	Approaches expectations	Below expectations
Correctly identifies $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{8}$ as well as $\frac{1}{9}$ and $\frac{1}{10}$ as part of a whole and as part of a group	Correctly identifies $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{8}$ as part of a whole and as part of a group	Inconsistently identifies $\frac{1}{2}$ and $\frac{1}{4}$ as part of a whole and as part of a group	Has challenges identifying $\frac{1}{2}$, $\frac{1}{4}$ and $\frac{1}{8}$ as part of a whole and as part of a group

Strand NUMBERS	Sub- Strand/Theme/Topic (Suggested time)	Specific Learning Outcomes (ensure you cover knowledge (k), skills (s) and attitudes (a)	Suggested Learning Experiences (align to the level competency descriptors)	Key Inquiry Question(s)
	1.4ADDITION; (SUGGESTED TIME;(25 periods of 35 minutes each)	Learner to; a) Add 3 digit number to up to a 2 digit number without regrouping with sums not exceeding 1000 to complete addition sentences (k) b) add a 3 digit number to up to a 2 digit number with single regrouping with sum not exceeding 1000 to complete addition sentences (k) c) add 3 single digit numbers by using a number line (k) d) add two 3- digit numbers without regrouping to solve addition problems in daily situations (k) a. add two 3- digit	<ul style="list-style-type: none"> • Learners could be guided to: <ul style="list-style-type: none"> - Identify numbers according to place value up to 1000 - add up to a 3 digit number to a 2 digit number vertically and horizontally in the place value chart • Learners could be guided to practice adding horizontally and vertically • Learners could work in pairs to come up with different ways of adding 3 digit numbers. • Learners could align numbers according to place value • Learners could add vertically and horizontally 	1) How do you arrange number when adding vertically 2) How do a two digit nu as a sum of a ten and a single digit 3) How do you identify the first two numbers when adding three single digit numbers 4) How can you get the next number in a given pattern

		<p>numbers with single regrouping with sum not exceeding 1000 to complete addition sentences (s)</p> <p>b. Write number pattern involving numbers up to 1000 in ordering numbers.[s]</p> <p>c. Appreciate the importance of having the addition skills</p>	<ul style="list-style-type: none"> • Learners could work out addition problems involving real life situations • Learners could work out addition problems using patterns • Learners could sing a song or recite a poem while adding numbers 	
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Core Competences to be developed: Communication and collaboration, critical thinking and problem solving ,learning to learn, creativity and imagination,	
Link to PCIs: ESD: Environmental Education: as learners collect objects in the environment	Link to Values: Respect, Responsibility
Links to other subjects : Languages, Nutrition and Hygiene Activities, Environmental Activities	Suggested Community Service Learning activities: assist in carrying chairs to a venue for an occasion and assist in counting the total number of chairs
Suggested Non formal Activity to support learning: Play addition games where learners guess number of objects hidden in different containers.	Suggested assessment: Oral questions, observation, written exercise. portfolio

Suggested Resources; Manila paper, a pair of scissor, biscuits, circular and rectangular cut outs, marbles, bottle tops, sticks, grains, stones large print exercise books pencils Braille paper slate stylus types type board cubes cuberithms rubber place value chart in large print abacus basic addition facts table in print and in Braille ,Braille card flash cards

Suggested Formative Assessment Rubrics

Exceeding Expectations	Meeting Expectations	Approaching Expectations	Below Expectations
Correctly adds more than two 3-digit numbers with single regrouping with sum not exceeding 1000, writes number patterns beyond 1000	Correctly adds more than two 3-digit numbers with single regrouping with sum not exceeding 1000, writes number patterns up to 1000	Inconsistently adds more than two 3-digit numbers with single regrouping with sum not exceeding 1000	Displays major errors in adding more than two 3-digit numbers with single regrouping with sum not exceeding 1000

SUBTRACTION

Strand	Sub-Strand	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
Number	1.5SUBTRACTION: SUGESTED TIME (20 periods of 35 minutes each)	Learner to: a) Subtract up to 3 digit numbers with regrouping to solve subtraction sentences b) Subtract up to 3 digit numbers involving missing numbers without regrouping in real life situations c) Work out missing numbers in number pattern involving numbers up to 1000 in sequencing numbers d) Appreciate the use of subtraction	<ul style="list-style-type: none"> Learners could be guided to practice writing 3-digit numbers in different forms such as $347 = 300+40+7$ $300+30+7$ Learners could be guided to practice subtracting up to 3-digit numbers without regrouping. Learners could be guided in working out subtraction of up to 3- 	f) When do you regroup during subtraction? g) How do you find a missing number in a subtraction question? h) How do you identify the missing number in a given number pattern ?

			<p>digit numbers with regrouping in real life</p> <ul style="list-style-type: none"> • a) Learners could be guided to visualize or touch and find missing numbers in subtraction sentences using a variety of ways such as number families • b) In pairs learners could be guided to discuss and create situations in familiar practical contexts that have missing subtraction sentences • Learners could be guided on how to discover the pattern by subtraction observation. • Learners to sing a song about subtraction. 	
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<p>Core Competences to be developed: Communication and collaboration – pairing and group work Self-efficacy – pairing and group work ,Critical thinking and problem solving – subtraction involving real life situation , number patterns, Imagination and creativity – patterns, subtraction involving missing numbers</p>	
<p>Link to PCIs ESD: DRR; Safety while working with assorted objects , Environmental Education by selecting safe and appropriate materials objects, re use of materials collected and cleaning the environment by collecting litter</p>	<p>Link to Values: Respect, Responsibility, sharing, compassion</p>
<p>Links to other subjects : Languages, Nutrition and Hygiene Activities</p>	<p>Suggested Community Service Learning</p>

Environmental Activities Braille Literacy	activities: Participating in community activities during the cleaning of environment
Suggested Non formal Activity to support learning: tell number of learners left in school after some go for music festivals.	Suggested assessment: oral questions observation written portfolio
Suggested Resources; Manila paper, a pair of scissor, biscuits, circular and rectangular cut outs, marbles, bottle tops, sticks, grains, stones large print exercise books pencils Braille paper slate stylus type board cubes cuberithms rubber place value chart in large print abacus basic addition facts table in print and in Braille ,Braille card flash cards	

Suggested Formative Assessment Rubrics

Exceeding Expectations	Meeting Expectations	Approaching Expectations	Below Expectations
Subtracts up to 3 digit numbers with regrouping, subtracts up to 3 digit numbers involving missing numbers without regrouping, subtracts missing number pattern up to 1000 and beyond	Subtracts up to 3 digit numbers with regrouping, subtracts up to 3 digit numbers involving missing numbers without regrouping, subtracts missing number pattern up to 1000	Inconsistently subtracts up to 3 digit numbers with regrouping, subtracts up to 3 digit numbers involving missing numbers without regrouping, subtracting missing number pattern up to 1000.	Major inaccuracies in subtracting up to 3 digit numbers with regrouping, subtracts up to 3 digit numbers involving missing numbers without regrouping, subtracts missing number pattern up to 1000

MULTIPLICATION

NUMBERS	1.6 Multiplication SUGGESTED TIME; (10 Periods of 35 minutes each)	Learner to; a) Multiply single digit numbers by numbers 1-10 on a Braille or	• In pairs or groups , learners could be guided to multiply single digit numbers by 1-10 by putting one object 1s,1 object twice up to 10	1) How much is: 5x2? 4x3? 2x4? 1x10? 3x7?
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		print multiplication table b) Arrange groups of objects in 1s 2s 3s 4s 5s 6s 7s 8s 9s up to 10 to create multiplication patterns c) Appreciate use of repeated addition in solving multiplication.	objects ten times a. Learner could add numbers repeatedly and record the results. b. Learners could sing song about the multiplication table.	
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Core Competences to be developed: Communication and collaboration as learners work in groups and in pairs, imagination and creativity as learners arrange different groups of objects certain number of times, critical thinking and problem solving as they do repeated addition, digital literacy.	
Link to PCIs: LIFE SKILLS; LIFE SKILLS: self awareness as learners use body parts to multiply. ESD: Environmental Education: as learners re use objects in subsequent lessons.	Link to Values: Respect, Responsibility, Dedication, Honesty
Links to other subjects : Languages, Nutrition and Hygiene Activities, Environmental Activities	Suggested Community Service Learning activities: visiting older citizens
Suggested Non formal Activity to support learning:	Suggested assessment: Oral questions, portfolio, observation, written exercise

Suggested Resources; Manila paper, a pair of scissor, biscuits, circular and rectangular cut outs, marbles, bottle tops, sticks, grains, stones large print exercise books pencils Braille paper slate stylus types type board cubes cuberithms rubber place value chart in large print abacus basic addition facts table in print and in Braille ,Braille card, flash cards, number line drawn on the ground/floor, multiplication tables in print and in Braille.

Suggested Formative Assessment Rubric

Exceeding Expectations	Meeting Expectations	Approaching Expectations	Below Expectations
Correctly and consistently multiplies single digit numbers by numbers 1-10, arranges objects to represent multiplication neatly and uses repeated addition to solve multiplication.	Multiplies single digit numbers by numbers 1-10, arranges objects to represent multiplication neatly and uses a repeated addition to solve multiplication.	Multiplies single digit numbers by numbers 1-10 with assistance.	Has major inaccuracies in multiplying single digit numbers by numbers 1-10

NUMBERS DIVISION

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
NUMBERS	1.7 DIVISION (SUGGESTED TIME; (8 Periods of 35 minutes each)	Learner to; a. represent division as repeated subtraction by taking away from a given group	<ul style="list-style-type: none"> Learners could be given a specific number of assorted objects to take away a specific number at a time until all are finished. Learners could be guided to 	<ol style="list-style-type: none"> How can we work out division, question using subtraction? How can we use the multiplication

Strand	Sub-strand/Theme/Topic (Suggested time)	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
		of objects b. Identify relationship between multiplication and division c. Appreciate use of division	count the number of groups formed <ul style="list-style-type: none"> • In pairs learners could be guided to practice division as repeated subtraction related to the basic facts of multiplication • In pairs or in group learners to practice multiplication of numbers up to $9 \times 10 = 90$ and how they can write equivalent sentences in division. 	table to work out division question? 3. What is the relationship between multiplication and division?

Core Competences to be developed: Communication and collaboration, critical thinking and problem solving, digital literacy, self efficacy	
Link to PCIs: LIFE SKILLS: Values: by having tolerance to one another ESD: Safety: as they use materials collected safely. Financial literacy :Keeping materials for future reuse	Link to Values: Respect, Responsibility
Links to other subjects : Languages, Nutrition and Hygiene Activities ,Braille Literacy,	Suggested Community Service Learning activities: learners encouraged to dispose litter appropriately during recess
Suggested Non formal Activity to support learning: share Braille	Suggested assessment: Oral questions, portfolio, observation

papers in class or books	
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Suggested Resources; Manila paper, a pair of scissor, biscuits, circular and rectangular cut outs, marbles, bottle tops, sticks, grains, stones large print exercise books pencils Braille paper slate stylus types type board cubes cuberithms rubber place value chart in large print abacus basic addition facts table in print and in Braille ,Braille card, flash cards, number line drawn on the ground/floor, multiplication tables in print and in Braille.

Suggested Formative Assessment Rubrics

Exceeding Expectations	Meeting Expectations	Approaching Expectations	Below Expectations
Correctly works out division as repeated subtraction up to 5 times and relates division to multiplication involving numbers beyond $9 \times 10 = 90$	Correctly works out division as repeated subtraction up to 5 times and relates division to multiplication involving numbers up to $9 \times 10 = 90$	Inconsistently works out division as repeated subtraction up to 5 times and relates division to multiplication involving numbers up to $9 \times 10 = 90$ assistance.	Has major inaccuracies in working out division as repeated subtraction up to 5 times and relates division to multiplication involving numbers up to $9 \times 10 = 90$

MEASUREMENTS

LENGTH

Strand	Sub-Strand	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
2.0 MEASUREMENT	2.1LENGTH; SUGGESTED	Learner to; <ul style="list-style-type: none"> Measure length of items in the 	k) In pairs or in groups learners could be guided to use the metre sticks to measure various	1) How do you measure the chalkboard using a

Strand	Sub-Strand	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
	TIME (6 Periods of 35 minutes each)	classroom in metres <ul style="list-style-type: none"> • Add length involving metres in real life situations • Subtract length involving metres in real life situations • Estimate length of distances up to 5 metres • Appreciate the use of the metre in measuring length 	distances e.g. chalkboard/classroom walks/teacher's table <ul style="list-style-type: none"> l) Learners could be guided to record and discuss the results and the teacher should emphasise on accuracy and correct manipulation of the measuring stick m) Learners could be assisted to prepare 5 metre long sticks with knots at intervals of one-metre to measure long distances n) In pairs or in groups learners could be guided to prepare 5 – metre long sticks to measure the distances between the flag post to their class/head teachers office o) Learners could be guided to record and discuss the results. p) In groups learners could be guided to measure the lengths of the 4 walls in their classroom q) Learners could be guided to put together (add) the 4 length r) In pairs or in groups learners could be guided to measure the length of the wall which has the 	metre stick? 2. How do you get the length of the 4 metre classroom walls? 3. How do you measure the distance between the flag post and the staffroom using 5 metre long string?

Strand	Sub-Strand	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
			chalkboard and record the results s) Learners could be guided to measure the length of the chalkboard then take away this length from the length of the wall and find the difference in length t) Learners could talk about the results u) Learners could be exposed to real life situations involving subjects of length in metres v) In pairs or in groups learners could be guided to estimate the length of various objects in class and around the school up to 5 metres w) Learners could be guided to record their results x) Learners could be guided to discuss their results	

Core Competences to be developed: Communication and collaboration as learners working in groups ,Imagination and creativity as measure various objects and putting together lengths of various objects, Critical thinking and problem solving in discussion of results which are varied, Self-efficacy – group work brings self-esteem during discussion	
Link to PCIs: ESD: DRR: Safety safe objects and of	Link to Values: Respect, Responsibility sharing patience compassion

appropriate sizes, CITIZENSHIP honesty and social cohesion, PARENTAL ENGAGEMENT :Parental Empowerment: support by provision of required materials an follow-up of assignments	
Links to other subjects :Languages, Nutrition and Hygiene Activities, Braille Literacy	Suggested Community Service Learning activities: visit an elderly citizen and assist in tethering of animals.
Suggested Non formal Activity to support learning: compare lengths of classroom doors in the school compound	Suggested assessment: Oral questions, portfolio, observation written exercise.

Suggested Resources; Manila paper, a pair of scissor, biscuits, circular and rectangular cut outs, marbles, bottle tops, sticks, grains, stones large print exercise books pencils Braille paper slate stylus types type board cubes cuberithms rubber place value chart in large print abacus basic addition facts table in print and in Braille ,Braille card, flash cards, number line drawn on the ground/floor, multiplication tables in print and in Braille.

Suggestive Formative Assessment Rubrics

Exceeds Expectations	Meets Expectations	Approaches Expectations	Below Expectations
Measures length in metres, add length in metres, subtracts length in metres and estimates length up to 5 metres and beyond	Measures length in metres, adds length in metres, subtracts length in metres and estimates length up to 5 metres	Inconsistently measures length in metres, adds length in metres, subtracts length in metres and estimates length up to 5 metres with assistance.	Major inaccuracies in measuring length in metres, adding length in metres, subtracting length in metres and estimating length up to 5 metres.

MASS

Strand	Sub-Strand	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
MEASUREMENT	2.2Mass; SUGESTED TIME ; (6 Periods of 35 minutes each)		•	a) How can you find out a 1 kilogram mass from a variety of items

Core Competences to be developed: Communication and collaboration, critical thinking and problem solving, digital literacy.	
Link to PCIs: PARENTAL ENGAGEMENT: Parental Empowerment And Engagement: involvement in provision of learning materials and guidance in items that weighs 1 kilogram at home.	Link to Values: Respect, Responsibility, Commitment
Links to other subjects : Languages, Nutrition and Hygiene Activities, Braille Literacy	Suggested Community Service Learning activities: visit a chicken farm and assist in weighing broilers.
Suggested Non formal Activity to support learning: play back to back lifting and say who is heavier?	Suggested assessment: Oral questions, portfolio, observation

Suggested Resources; Manila paper, a pair of scissor, biscuits, circular and rectangular cut outs, marbles, bottle tops, sticks, grains, stones large print exercise books pencils Braille paper slate stylus types type board cubes cuberithms rubber place value chart in large print abacus basic addition facts table in print and in Braille ,Braille card, flash cards, number line drawn on the ground/floor, multiplication tables in print and in Braille.

Suggested Formative Assessment Rubrics

Exceeding expectations	Meeting expectations	Approaching expectations	Below expectations
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Learner is able to measure, add, subtract and estimate mass of objects in kilograms in real life situations accurately and consistently beyond 5 kilograms	Learner is able to measure, add, subtract and estimate mass of objects up to 5 kilograms in real life situations	Learner is able to measure, add, subtract and estimate mass of objects with assistance in real life situations	Learner has challenges in measuring mass
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CAPACITY

Strand	Sub-Strand	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
MEASUREMENT	2.3CAPACITY SUGGESTED TIME(8 periods of 35 minutes each)	Learner to; a) Measure capacity in litres to determine how much they hold. b) Add capacity involving litres in real life situations c) Subtract capacity involving litres in real life situations d) Estimate capacity of different containers up	<ul style="list-style-type: none"> Learners could be guided to collect safe containers for use in class Learners could be guided to work in groups or pairs to fill in containers of different sizes using the litre as they take turns The teacher could discuss the results and highlight issues of accuracy in 	<ol style="list-style-type: none"> How many litres of water were used to fill in the different containers? What is the total number of litres contained in these two containers? What is the approximate

Strand	Sub-Strand	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
		<p>to 5 litres</p> <p>e) Appreciate the use of litres in measuring capacity</p>	<p>measuring, spilling and breakages</p> <ul style="list-style-type: none"> • Learners could be encouraged to add capacity in litres in real life situation like issues of buying milk, drawing water from a well • Learners could be encouraged to subtract litres in real life situations, discuss issues like milk being sold in litres. • Learners could be encouraged to collect different sizes of containers and estimate their capacity in litres up to 5 litres • Learners could be guided to record findings and the teacher leads a discussion to discuss results • Learners could sing a song while performing the tasks. 	<p>capacity of these jericans?</p>

Core Competences to be developed: Critical thinking and problem solving when learners use arbitrary units to measure capacity, Communication and collaboration as learners work in groups, Imagination and creativity as they collect and use different containers, Citizenship as they act ethically and responsibly in their groups while filling and emptying containers, Self-efficacy – learners develop self-esteem as they work in groups	
Link to PCIs: ESD: Environmental Education on water conservation, Safety when using clean water	Link to Values: Respect, Responsibility, Honesty, Sharing
Links to other subjects : Languages, Nutrition and Hygiene Activities, Environmental Activities, Braille Literacy	Suggested Community Service Learning activities: visit an Elderly parent and help to fetch water for them.
Suggested Non formal Activity to support learning: carry water for their washing activities	Suggested assessment: Oral questions, portfolio, observation, written exercise

Suggested Resources; Containers of different sizes, water, sand, soil

Suggested Formative Assessment Rubrics

Exceeding Expectations	Meeting Expectations	Approaching Expectations	Below Expectations
Measures capacity in litres, adds, and subtracts the litre in real life experience and estimates capacity up to 5 litres and beyond	Measures capacity in litres, adds and subtracts the litre in real life experiences and estimates capacity up to 5 litres	Inconsistently measures capacity in litres, adds and subtracts the litre in real life experience and estimates capacity up to 5 litres	Major inaccuracies in measuring capacity in litres adding and subtracting the litre in real life experience and estimating capacity up to 5 litres

TIME

Strand/Sub-Strand	SUB STRAND	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
MEASUREMENT	2.4TIME SUGESTED TIME;(10 Periods of 35 minutes each)	Learner to; a) Identify the minute as a unit of measuring time b)Read, time on a clock face or digital clock using ‘past’ and ‘to’ the hour c)Write time shown on a clock face or a digital clock using past and to the hour d)Estimate time in hours to approximate time for daily activities e)Add time involving hours and minutes without conversion in real life context f)Subtract time involving hours and minutes without conversion in real life contexts g)Appreciate the use of hours and minutes in measuring time	<ul style="list-style-type: none"> • In pairs or in groups learners could be guided to discuss hours and minutes as unit of measuring time as well as their relationship to one hour • In pairs and in groups learners could be guided to tell and write time using ‘past’ and ‘to’ the hour <ul style="list-style-type: none"> • In pairs and in groups Learners could be guided to in pair/groups estimate time in hours. • In pairs/groups, learners could discuss addition involving time in hours without convention in real life context. • In pairs and in groups, learners could be guided to discuss addition involving time in 	1) How do we convert hours to minutes? 2) How do we change minutes to hours?

Strand/Sub-Strand	SUB STRAND	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
			minute without conversion in real life context. <ul style="list-style-type: none"> Learners could sing a song or recite a poem while telling time 	

Core Competences to be developed: Communication and collaboration when carrying out group activities, critical thinking and problem solving in addition and subtraction of hours and minutes, digital literacy.	
Link to PCIs: ESD; Environmental Education when feeding animals at the recommended time, Safety when handling various farm animals CITIZENSHIP; when working in groups to fetch water for the animals and being honest in keeping time.	Link to Values: Respect, Responsibility, commitment, Caring.
Links to other subjects : Languages, Nutrition and Hygiene Activities, Environmental Activities, Braille Literacy	Suggested Community Service Learning activities: visiting a neighbour at evening hours to help feed their animals
Suggested Non formal Activity to support learning: serving their young colleagues at a stated time	Suggested assessment: Oral question, written exercise, observation, portfolio

Suggested Resources; Manila paper, large print exercise books, pencils, Braille paper, slate stylus, Charts (in Braille and in print) with days of the week and months of the year in order, talking digital clock

Suggested Formative Assessment Rubrics

Exceeding expectations	Meeting expectations	Approaching expectations	Below expectations
	Reads, tells, writes time using past and to the hour, estimate time in hours and minutes, adds and subtracts time involving hours and minutes in real life situations	Inconsistently reads, tells, writes time using past and to the hour, estimates time in hours and minutes, adds and subtracts time involving hours and minutes in real life situations	Has major challenges in reading, telling, writing time

MONEY

Strand/Sub-Strand	Sub-Strand	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
MEASUREMENT	2.5MONEY; SUGESTED TIME; (10 Periods of 35 minutes each).	Learner to; a) i) Identify Kenyan currency notes up to ksh.1000 to differentiate money ii) Count money in different denominations up to ksh.1000 to compute total amount at hand. b) i) Add money in shillings up to a sum of ksh.1000 to show the total value ii) Subtract money in shillings up to ksh.1000	<ul style="list-style-type: none"> In pairs or in groups learners could be guided to sort out Kenyan currency notes according to their attributes up to ksh.1000 i) In pairs or groups learners could be guided to practice adding money in real life situations up to a sum of ksh.1000 ii)In pairs or groups learners could be guided to practice subtracting money in real life situation up to ksh.1000 i) In pairs or groups learners could be guided to practice 	1) How do we convert hours to minutes 2) How do we change minutes to hours?

Strand/Sub-Strand	Sub-Strand	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
		<p>to determine amount left.</p> <p>c) i) Carry out shopping activities involving change in the classroom shop</p> <p>ii) Carry out shopping activities involving balance in real life situations.</p> <p>d) Relate money to goods and services up to ksh.1000 to use in shopping activities</p> <p>e) Differentiate between needs and wants to use money appropriately in real life situations.</p> <p>f) Appreciate meaning of spending and saving money in real life situations</p>	<p>giving change using imitation money up to ksh.1000 in shopping activities</p> <p>ii) In pairs or groups learners could be guided to practice giving balance after a shopping activity in the classroom shop</p> <ul style="list-style-type: none"> • i) In pairs or groups learners could be guided to use own experience in relation to shopping activities ii) Learners could be guided to discuss the value of items in the classroom shop up to ksh.1000 • In pairs or groups learners could be guided to discuss items or things they cannot do without and those that are necessary but they can do without them up to Ksh.1000 ii) In groups or whole class learners could be guided to classify needs and wants • Learners could sing a song and recite a poem in 	

Strand/Sub-Strand	Sub-Strand	Specific Learning Outcomes knowledge (k), skills (s) and attitude (a)	Suggested learning experiences (align them to the level competency descriptors)	Key Inquiry Questions
			counting money.	

Core Competences to be developed: Communication and collaboration working in groups, critical thinking and problem solving when discussing the aspect of saving, Self efficacy tell own experiences involving change and balance, digital literacy.	
Link to PCIs: CITIZENSHIP: Patriotism appreciating the Kenyan Currencies, ESD: Safety as they observe buying goods that have not expired	Link to Values: Respect, Responsibility, Honesty, Appreciation, Satisfaction.
Links to other subjects : Languages, Hygiene and Nutrition Activities, Environmental Activities, Braille Literacy	Suggested Community Service Learning activities: Attend a church service and assist in collecting and counting money offered as offerings.
Suggested Non formal Activity to support learning: going to the shopping centre to shop for their parents	Suggested assessment: Oral questions, portfolio, observation, written exercise

Suggested Resources;

One shilling coins (copper, silver, small and big coins) sh. 10, 20, 40 coins, sh. 50 and sh. 100 notes, classroom shop, tracing pap

Suggested Formative Assessment Rubrics

Exceeding expectations	Meeting expectations	Approaching expectations	Below expectations
Consistently and correctly identifies and uses Kenyan currency in real life situation	Identifies and uses Kenyan currency in real life situations	Identifies and uses Kenyan currency in real life situations with assistance	Has major challenges identifying and using Kenyan currency in real life situations

Strand		Specific Learning Outcomes (ensure you cover knowledge (k), skills (s) and attitudes (a))	Suggested Learning Experiences (align to the level competency descriptors)	Key Inquiry Question(s)
3.0GEOMETRY	3.1Position and direction(5 periods of 35 minutes each)	Learner to; a) Move along a straight line to a predetermined point in the compound b) Turn to the right to relate position. c) Turn to the left to relate position d) Appreciate the use of directions	<ul style="list-style-type: none"> • Learners could be guided to form groups and choose a leader and encouraged to cooperate and the qualities of leadership displayed. • In pairs or in groups learners could be guided to move along a straight line • In pairs or in groups, learners could be guided to move straight along the side of their classroom • In pairs or in groups learners could be guided to move straight along the outside of their 	<ol style="list-style-type: none"> 1) What types of lines are there? 2) How do you move in a straight line? 3) Which position is your class?

			<p>classroom and then turn to the right</p> <ul style="list-style-type: none"> • In pairs and in groups learners could be guided to move straight along the outside of their classroom and then turn to the left • In pair and groups learners could be guided in moving along a straight line and turning e.g. move straight 6 steps and turn left • Learners could sing a song related to directions. 	
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Core Competences to be developed: Communication and collaboration as they discuss movement, critical thinking and problem solving, digital literacy, Self Efficacy as they wait for their turns to line up.	
Link to PCIs: LIFE SKILLS; awareness as they use their body parts in movement.	Link to Values: Respect, Responsibility, Patience, Caring.
Links to other subjects: Languages, Hygiene and Nutrition Activities, Environmental Activities, Braille Literacy.	Suggested Community Service Learning activities: Assist an elderly person with sight problems get direction to

	church
Suggested Non formal Activity to support learning: take a walk to the market.	Suggested assessment: Oral questions, portfolio, observation, written exercise

Suggested Resources; Manila paper, a pair of scissor, sticks, rulers, tape measures, sound ball, bells.

Suggested Formative Assessment Rubrics

Exceeding Expectations	Meeting Expectations	Approaching Expectations	Below Expectations
Consistently and correctly demonstrates movement along a straight line to the right to the left	Demonstrates movement along a straight line to the right and to the left	Inaccurately demonstrates movement along a straight line to the right and to the left	Major inaccuracies in demonstrating movement along a straight line to the right and to the left

SHAPES

STRAND	Sub-strand/ Theme/ Topic (Suggested time)	Specific Learning Outcomes (ensure you cover knowledge (k), skills (s) and attitudes (a))	Suggested Learning Experiences (align to the level competency descriptors)	Key Inquiry Question(s)
GEOMETRY	SHAPES; SUGESTED TIME; (6 Periods of 35 minutes each).	Learner to; a) Name different shapes in the learning environment.[K] b) Make patterns involving rectangles, circles, triangles, ovals and squares[S] b) Appreciate the use of geometry [A]	<ul style="list-style-type: none"> Learners could be guided to form groups and choose a leader and encouraged to cooperate and the qualities of leadership displayed. The learners could be 	<ol style="list-style-type: none"> 1) What sha can you identify ir your scho 2) How wou you group shapes 3) What are

			<p>guided to sort and group shapes using one attribute</p> <ul style="list-style-type: none"> • In pairs or groups learners in could be guided to discuss the properties of the shapes in the various groups. • In pairs or groups learners could be guided to identify and name the different shapes found in their classroom. • Learners could be guided to work individually in making patterns of their choice using the five shapes • Learners could be guided in making patterns, colouring them and sharing with other groups. Teacher guides learners on need to be careful during the painting so as not to paint their clothes • Learners could sing a song or recite a poem 	<p>properties shapes?</p>
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			while making patterns.	
Core Competences to be developed: Communication and collaboration as they work in groups, critical thinking and problem solving as they make patterns based on their choice, Self Efficacy enjoying the beauty of created patterns, digital literacy.				
Link to PCIs: ESD: Environmental Education; collecting materials and cutting into shapes of their choice. Safety when using sharp objects during cutting of shapes.			Link to Values: Respect, Responsibility, patience. commitment	
Links to other subjects: Languages, Hygiene and Nutrition Activities, Environmental Activities, Braille Literacy.			Suggested Community Service Learning Activity: learners to assist beautify pre-school classrooms with patterns made.	
Suggested Non formal Activity to support learning: make toys using shapes			Suggested assessment: Oral questions, portfolio, observation	

Suggested Resources; Cut- outs of rectangles, circles, and triangles of different sizes, scissors

Suggested Formative Assessment Rubric

Exceeding Expectations	Meeting Expectations	Approaching Expectations	Below Expectations
Consistently and correctly makes patterns involving rectangles, circles, triangles, ovals, squares	Makes patterns involving rectangles, circles, triangles, ovals and squares	Inaccurately makes patterns involving rectangles, circles, triangles, ovals and squares	Major inaccuracies in making patterns involving rectangles, circles, triangles, ovals and squares