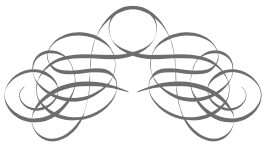
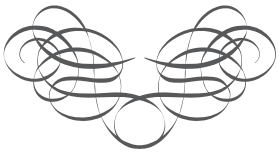


# MATHEMATICS ACTIVITIES

# TEACHER'S GUIDE GRADE 3

## FOR LEARNERS WITH HEARING IMPAIRMENT



MINISTRY OF EDUCATION



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**Foreword**

The focus of education in any country is the provision of quality education and training to all its citizens. The Government of Kenya is committed towards this goal as one of the Sustainable Development Goals (SDGs), a contributor to other core SDGs and a right for all, irrespective of their physical status, according to the *2010 Constitution of Kenya*. Quality education is paramount to any country in development and the building of a just and cohesive society that enjoys inclusive and equitable social development. In an effort to realise national aspirations of education as envisioned in all policy documents, the Government has provided a policy framework to offer direction in modernising and re-branding the country's education and training system including that of learners with special needs and disabilities (SN&D). These documents include *Vision 2030*, National Education Sector Strategic Plan 2018-2022 (NESSP) and Sessional Paper No. 1 of 2019.

It is the focus of Government to ensure maintenance and improvement of inclusive, equitable and quality education to avoid persistent regional disparities in learning outcomes as well as access to education based on gender, diverse needs, location and region. The basis of the ongoing education reform is to make education in Kenya competitive internationally, and socio-economically viable. The Government is ensuring that education strives to stimulate innovation and enhance acquisition of 21st Century skills through provision and adaptation of content for learners with special needs and disabilities. These are embedded in the competencies, pertinent and contemporary issues as well as the values in the curriculum.

The Ministry of Education (MoE), in partnership with Global Partnership for Education (GPE) and other development partners, has invested heavily in the provision of educational materials, infrastructure, and human resources in order to enhance the quality of education delivered in Kenyan schools. Evidence-based interventions and global best practices have been adopted in teaching numeracy in early grades.

This adapted mathematics teachers' guide for learners with special needs and disabilities is based on Competency Based Curriculum and is approved by the Kenya Institute of Curriculum Development for use in schools. It will no doubt inform and guide the teaching and learning of mathematics in early grades. The design of the guide ensures that all Kenyan learners with special needs and disabilities can perform arithmetic operations accurately and efficiently. I, therefore, urge our partners to continue supporting the education sector in the implementation of strategies in the National Education Sector Plan to promote the quality of education.

**Prof. George A. O. Magoha, EGH**
**Cabinet Secretary,**
**Ministry of Education**

**Preface**

The goal of the Ministry of Education is to provide quality and inclusive education to all learners irrespective of their socio-economic and physical status. In line with this, reforms have been undertaken in Kenya to improve the education sector with a view to making it globally competitive. The Competency Based curriculum that has been rolled out emphasises nurturing every learner's potential to ensure they are engaged, empowered and ethical. The focus of the curriculum is to focus on the provision of quality and relevant education.

Research initiatives such as National Assessment Monitoring Learning Achievement (NASMLA) and Southern and Eastern Africa Consortium for Monitoring Education Quality indicate the need for improved achievement in literacy and numeracy competencies among learners with special needs. Indeed, recent developments in the education reform process emphasise the role of literacy and numeracy competencies in supporting learning, especially in the foundational early grades. The increasing focus on the quality of education has resulted in interventions that have shown a positive impact on literacy and numeracy outcomes.

Over time, the Ministry of Education increasingly focused on improving the quality of education in lower primary, particularly in the areas of literacy and numeracy. The Early Grade Mathematics component of the Kenya GPE - Primary Education Development (PRIEDE) Project is a scale-up of the Primary Mathematics and Reading (PRIMR), which was supported by USAID and DFID.

The overarching goal of Early Grade Mathematics is to improve early grade mathematics competency among learners. The programme aims at improving teacher capacity for effective delivery of classroom instruction, improving access to appropriate mathematics textbooks, supplementary materials, and enhancing instructional support and supervision of teachers by Curriculum Support officers and head teachers.

This adapted teachers' guide for learners with special needs and disabilities is based on the Competency Based Curriculum and is approved by Kenya Institute of Curriculum for use in the teaching of mathematics in early grades. This guide aims at helping pupils with special needs and disabilities to learn a variety of mathematical skills and concepts.

**Dr Belio R. Kipsang, CBS**
**Principal Secretary**
**State Department of Early Learning and Basic Education**

**Acknowledgements**

This adapted teacher's guide for learners with special needs and disabilities has been adapted as a result of the generous financial support from the Global Partners in Education (GPE). The book was initially developed based on the 8-4-4 curriculum after a successful USAID/Kenya and DFID/Kenya funded pilot programme, the Primary Math and Reading Program (PRIMR). The book was reviewed in alignment with the Competency Based Curriculum and is approved by the Kenya Institute of Curriculum Development.

The Principal Secretary, State Department of Early Learning and Basic Education, Ministry of Education (MoE), Dr Belio Kipsang, and Dr Julius Jwan, were instrumental in tirelessly directing the technical efforts of the relevant directorates at MoE, the Kenya National Examinations Council (KNEC), Kenya Education Management Institute (KEMI), Kenya Institute of Special Education (KISE) and the Teacher's Service Commission (TSC).

In a special way, we thank the Global Partnerships for Education (GPE) for funding the implementation of the PRIEDE Project, and World Bank for effective supervision. We also express our deepest appreciation to Ruth Charo, the Task Team Leader (World Bank), who provided invaluable guidance and support in the adaptation process of this book.

Special recognition to MoE Director General Elyas Abdi, PRIEDE Project National Coordinator Martha Ekirapa, and KICD Senior Deputy Director Jacqueline Onyango of KICD for their outstanding support to the team during the process of the adaptation of this guide. Further, we acknowledge the role of the PRIEDE Project Component 1 Lead, Hellen Boruett, PRIEDE staff Juma Munyiri and Mr Joshua Kilundo for effective coordination of the whole process, and the crucial role of the relevant MoE Directorates: the Directorate of Quality Assurance and Standards, the Directorate of Primary Education, the Directorate of Special Needs Education, the Directorate of Field and other Services, CEMASTEA, KNEC, and KICD, and the TSC for providing all the required technical support.

More fundamentally, we wish to also recognise members of the multi- sectoral members of KICD Mathematics Panel and Early Grade Mathematics Technical Team for their invaluable commitment, support, immense individual contribution and sacrifice towards the completion of the adaptation of the content of this guide.

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## IMPORTANT NOTES FOR THE TEACHER

Mathematics is a subject that deals with numbers and symbols whose relationship is expressed in rules. Mathematics enables the learner to acquire competencies, values and positive attitudes which enable them to develop logical thinking, ability to apply the knowledge acquired, analyze situations and make rational decisions. The competencies that learners acquire enable them to continue with further education, lead a productive life and contribute to National economic development. The subject is organized such that the content taught in one level becomes the prerequisite in the next level. The content therefore becomes more demanding as we move from one level to another.

This guide was developed to help the teacher to:

i. Identify the general, the specific learning outcomes, and the specific lesson learning outcomes for all the strands covered in Early Grade Math Book 3
ii. Prepare detailed schemes of work and lesson plans
iii. Identify, select and use the most cost-effective learning resources
iv. Choose the most effective approach (methods) and techniques in teaching math grade 3
v. Plan for the available time for more effective teaching
vi. Organize the teaching/learning activities in class
vii. Carry out effective assessment
viii. Integrate the issues of reformed curriculum in Grade 3 Mathematics activities.

## HOW TO USE THIS GUIDE

This Guide contains the following;

### a) STRANDS

This is content areas to be covered. There are three (3) strands, namely;

i. Numbers
ii. Measurement
iii. Geometry

**b) A SUB STRAND**

This is the content covered in one part of the strand

**c) SUGGESTED TIME**

This is the suggested number of lessons per sub strand

**d) LEARNING OUTCOMES**

This is what is expected to be achieved at the end of level, learning area, or each lesson. The following are different levels of learning outcomes;

**i. Learning Outcomes for Early Years Education**

The level learning outcomes for early year's education are derived from the National goals of education. They are the outcomes for all learning activities done in early year's education level. These are given as follows;

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

- Demonstrate basic literacy and numeracy skills for learning.
- Communicate appropriately using verbal and/or non-verbal modes e.g sign language and gestures in a variety of contexts.
- Demonstrate appropriate behaviours in social relationships.
- Use creativity and critical thinking skills in problem solving.
- Explore the immediate environment for learning and enjoyment.
- Practice hygiene, nutrition, sanitation, safety skills to promote health.
- Demonstrate the acquisition of emotional, physical, spiritual, aesthetic and moral development for balanced living.
- Demonstrate appreciation of the country's rich and diverse cultural heritage for living together peacefully.
- Use digital literacy skills for learning and enjoyment.

**ii. Learning Outcomes for Mathematics:**

It is from the Early Year's education level learning outcomes that the General learning outcomes for Mathematics activities are derived. They are as given below;

By the end of the early year's mathematics, learners should be able to;

- Demonstrate mastery of Number concepts by working out problems in day to day life.
- Use measurement skills to find solutions to problems in a variety of contexts
- Describe properties of Geometrical shapes and relating them to real life experiences

### iii. Specific Learning Outcomes

The specific learning outcomes are then derived from the general learning outcomes from which learning experiences are formulated. (NB: The specific learning outcomes are given under each strand (See the curriculum designs))

### e) SUGGESTED TEACHING/LEARNING RESOURCES

These are the suggested resources or materials to be used by the hearing impaired during a lesson for teaching and learning. The teacher may add or substitute the suggested resources. The teacher is advised to use locally available resources which are cost effective. It is important to remember that guest speakers are special resources because they possess the knowledge required. Teachers are advised to select those resource people who are ready to give the very best output. The surrounding environment is a resource and teachers are advised to provide the materials that learners are familiar with.

NB : For learners with hearing impairment, the teacher should use relevant concrete or visual teaching/learning resources.

### f) SUGGESTED LEARNING EXPERIENCES

These are the activities to be carried out by the learners in order to achieve the learning outcomes. Teachers are encouraged to expose the learners to practical experiences which are needed in learning mathematical concepts such as capacity, weight, length and time

### g) ISSUES IN THE REFORMED CURRICULUM

Kenya is currently undergoing curriculum change across all levels of education and all learning areas including Mathematics. The following are some of the issues in the reformed curriculum which have to be integrated in Mathematics:

## i. CORE COMPETENCES

A competency is the ability to apply or use a set of related knowledge, skills, values, attitudes and abilities required to successfully perform "critical work functions" or tasks in a defined setting. Competences often serve as the basis for skill standards that specify the level of knowledge, skills, and abilities required as well as potential measurement criteria for assessing competency attainment.

There are seven (7) core competencies to be achieved by every learner across all levels of education, namely:

1. Communication and Collaboration
2. Critical Thinking and Problem Solving
3. Creativity and Imagination
4. Citizenship
5. Digital Literacy
6. Learning to Learn
7. Self-efficacy

**Communication and collaboration**

Communication is the act of transferring information from one place to another, whether vocally, visually, or non-verbally. Collaboration is the process of two or more people or organizations working together to realize shared goals. Collaboration may require leadership, social within a decentralized or egalitarian group teams that work collaboratively in relation to gaining greater resources, recognition and motivation.

**Self-efficacy**

Self-efficacy is the 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 self positively. Self-efficacy has the potential to determine four major processes namely cognitive, motivational, and affective and selection processes.

Self-efficacy will enable learners to develop and nurture intra-personal

skills and values such as self-awareness, self-esteem, confidence and personal integrity.

**Critical thinking and problem solving**

There are three types of thinking: reasoning, making judgments, and problem solving. 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.

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 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. The competences are also important for solving problems in their lives and community, and ultimately achieve their potential which is the vision for basic education curriculum.

**Creativity and Imagination**

Imagination and Creativity refers to the ability to form new images and sensations in the mind, and to turn them into reality. 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 turning those pictures into real things. Imagination and Creativity on the other hand, is characterized by ability to perceive the world in new ways, to find hidden patterns, to make connections between seemingly unrelated phenomena, and to generate solutions.

In an educational set up, imagination and creativity 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 which result in

products that add value to their lives and to those of others around them.

**Citizenship**

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.

**Digital literacy**

Digital literacy is the knowledge, skills and behavior in a broad use of digital content and devices. Such devices include mobile phones, smartphones, iPhone, tablets, laptops and desktops among others. All these are within the category of network devices. Digital literacy therefore focuses mainly on networking 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. Digital literacy includes the ability to exploit the opportunities offered by ICT, and use them critically and innovatively in every day work. Digital literacy also include the ability to use information and communication technologies to find, evaluate, create and communicate information, requiring both cognitive and technical skills (Norwegian Ministry of modernisation, 2009)

For learners with hearing impairment, digital devices should contain signed and fingerspelt instructions since they are visual learners.

**Learning to learn**

Learning to learn is the ability to pursue and persist in learning, to organize one's own learning, by 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 skill 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 to live together.

**ii) Values-based Education (VbE)**

Values are standards that guide people on how to respond or behave in each situation. They influence how someone feels, acts and makes choices in life.

The responsibility for **nurturing values** rests with parents, school and the community. Everybody in the school has a role to play in helping the learner to nurture values. This approach is referred to as 'The whole school approach to value based education'.

The overall goal of values-based education is 'To nurture values in learners to become empowered, engaged and ethical citizens for positive and holistic transformation of society'. The teacher therefore has an important role to play in nurturing values through teaching.

**Core Values**

According to the competency based Curriculum there are eight core values to be nurtured in the learner namely love, responsibility, respect, unity, peace, patriotism, social justice, and integrity. The teacher is expected to identify value(s) to be nurtured in the learning experience in every strand. He/she is expected to constantly guide and engage the parents to reinforce the values learners have learnt in school or at their home. Learners are expected to emulate exemplary behaviors and values from teachers, family members and the community at large hence the need for adults to exhibit good behaviour. Learners spend most of their formative years in school, which presents opportunities for the teacher to mold and reinforce values upon which the learner's character is formed.

**iii) Pertinent and Contemporary Issues (PCIs)**

Holistic, meaningful and learner centred education does not only focus on the subject content but also on the competencies the learner requires to effectively address the issues and challenges of everyday life thereby leading a fulfilled life and becoming a productive member of the society. Issues that have been identified as salient and therefore mainstreamed in the designs are referred to as Pertinent and contemporary issues (PCIs). Mainstreaming is the process of identifying suitable opportunity in the learning area or subject where PCI can be incorporated appropriately and taught alongside the subject matter. PCIs should be included in the schemes of work and in the lesson plans.

PCIs have been classified into six broad areas comprising of several related salient issues as follows:

- **Citizenship.** Peace Education, Integrity, ethnic and racial relations, social cohesion, patriotism, good governance, child's rights, child care and protection,
- **Health Education**, HIV and AIDS Education, Alcohol and drug abuse prevention, Life style diseases, personal hygiene, Common Communicable and non-communicable diseases and chronic, diseases
- **Life Skills and Values Education:** Life Skills Education, Core Values and Human sexuality.
- **Education for Sustainable Development (ESD):** Environmental Education, Disaster Risk Reduction, Safety and security Education, Financial Literacy, Poverty eradication, Countering terrorism, extreme violence and radicalization, Gender issues in education and Animal Welfare Education
- **Learner Support Programmes (Non Formal Education programmes):** Guidance services, Career guidance, counselling services, peer education, mentorship, chaplaincy services, clubs and societies, Sports and games.
- **Parental Empowerment and engagement, and Community Service learning:** Parental empowerment and engagement and,

Community and Service learning.

During lesson preparation, the teacher has to be deliberate in identifying specific PCIs and planning how they shall be incorporated in the lesson. He /She should ensure activities on PCIs are undertaken and covered during the learning experiences.

The teacher is expected to constantly guide and engage the parents to reinforce what the learner has learnt in school at home. The school community and the larger community should provide conducive environment for learners to apply competencies they have learnt on PCIs to address issues at home and in the society. Please refer to the sample lesson plan given in the handbook/Teachers guide.

PCIs are supposed to not only be integrated in the lesson but in other programmes and activities in the school, home and in the community. Acquisition of knowledge, values and skills in various PCIs will enable the learner to translate what they have learnt to real life situation both in and outside school.

**iv) Differentiated Learning**

Every learner learns differently. Technically, individual learners have preferential way in which they absorb, process, comprehend and retain information. It is therefore important for educators to understand the differences in their learners' preferential way of learning, so that they can implement best practice strategies into their daily activities, curriculum and assessments.

Differentiated Learning is effective instruction that is responsive to learners' readiness, interests and learning preferences. It enables learners to build new learning through connections to existing knowledge and preferred ways of learning. Readiness is the learner's starting point for learning, relative to the concept being studied while his or her interests enhances the relevance of learning by linking new information to his or her experience and enthusiasm. The learning preferences refer to different ways in which learners prefer to acquire, process and work with information.

Learning preferences are influenced by gender, culture, the classroom environment, learning styles and multiple intelligences. Teachers are required to use a range of instructional and assessment strategies to meet the needs of different learners. Learners are assessed before, during and after learning. Assessment informs next steps for both teacher and learner. All differentiated instruction activities are equally engaging and respectful and take approximately the same amount of time.

Differentiated learning allows for flexibility in creating and altering instructional plans in response to learners. It involves expanding instructional routines and skills where learning experiences are introduced to learners in different ways of learning. Differentiated learning provides effective teaching that involves providing different learners with different avenues to learning.

**v) Use of Information Communication Technology (ICT)**

ICT entails the use of technology in information delivery. Consequently ICT in education entails teaching and learning using technology devices and material.

The resources used in ICT are mainly digital, electronic and Portable Document Format (PDF) files. The bulk of ICT education materials in KICD are radio, television, e-learning programmes and PDFs.

- **Radio programmes -** involve audio recordings disseminated through radio/electronic devices
- **Television (Video) programmes -** audio-visual content that is mainly video based and disseminated through television and other electronic devices.
- **E – learning (computer based) programmes -** electronic learning materials disseminated through computer /smart T.Vs technology.
- **PDFs** - electronically converted images from print material.

The education ICT content is stored in various electronic formats including offline modes such as CDs, DVDs, Flash disks, Memory cards and online formats.

The KICD electronic content can be accessed from the following Digital Literacy Programme devices in the schools:

- Teacher Digital Device (TDD)
- Learner Digital Device (LDD)
- Digital Content Server & Wireless Router (DCSWR)
- External Hard Disk

When chosen and used appropriately, the electronic material will enable the learner use modern technologies thus making ICT technology a delivery tool for all learning areas. This added advantage to teaching and learning enhances learning by;-

- Supplementing classroom instruction
- Stimulating and motivating the learner
- Enhancing concepts acquisition
- Arousing learners interest and promoting active participation during the lesson
- Saving time used to explain concepts
- Enhancing skills development
- Enabling the teacher to cater for individual differences
- Reaching learners by multisensory presentation

Research findings indicate that retention of knowledge and skills is highly accomplished through the three sensory domains of audio, audio-visual and tactile. The teachers are therefore encouraged to use quality Educational Resources. The endeavor will enable teachers to access resources that will address the needs of the learner in order to make learning interesting and more meaningful. When choosing the appropriate resource, the teacher should take note of the following;-

- Relevance to the content being taught
- Accuracy
- Stimulation of learner's imagination and enhancement of concepts acquisition
- Appropriateness to the level of the learner
- Capability of capturing the learner's interest for active

participation

- Durability and safety for learners use
- Application of new knowledge and skills
- Conformity to set standards
- Awareness creation to teachers on the latest pedagogical practices
- Interactivity and sustainability

The use of technology to teach and learn is a major educational reform.

It can be used as a tool for learning. It is a valuable resource which can be used:

- ✓ As a method for teaching
- ✓ For assessment
- ✓ To introduce the lesson and
- ✓ To enhance what was learnt

Information and Communication Technologies play an increasingly important role in the way we communicate, learn and live. The challenge is to effectively harness these technologies in a way that serves the interests of learners in their learning environment.

ICT should contribute to access to education, equity in education and the delivery of quality learning and teaching. It is not meant to replace the teacher. Instead, consideration must be given to the subject matter, the learning objectives and outcomes, the characteristics of the learners, and the learning context in order to arrive at the optimum mix of instructional and delivery methods. Moreover, different technologies are typically used in combination rather than as the sole delivery mechanism.

**PROFESSIONAL DOCUMENTS AND THEIR USE**

In order to plan for effective delivery of the curriculum, it is crucial that teachers plan their work well. Professional documents are used to organise curriculum implementation. Kenya Institute of Curriculum Development develops **curriculum designs**. These are curriculum

documents which usually contain specific information about the course such as, details on the expected learning outcomes, what is to be taught, how it can be taught, and suggestions for assessment, resources and time allocation. It is therefore a vital document that the teacher must use in the teaching and learning process. The teacher should use the curriculum designs while preparing schemes of work and lesson plans.

**Schemes of Work** are developed by the implementing teacher to organise how the curriculum will be implemented in a given year. It is developed from the curriculum designs. It helps the teacher distribute what is to be covered within the available time and how it shall be done. It therefore shows how the planned curriculum shall be distributed or organised within the time allocated. The teacher who is expected to teach the activity area should develop the scheme of work as he/she can easily contextualise what is feasible for implementation in his/her context. He or she is able to tell what resources are available for him or her to use in the learning process. A sample scheme of work is appended at the back of this book.

**Lesson plans** are developed from the schemes of work. They describe the actual teaching and learning experiences that the teacher will facilitate during the lesson. It provides clear instructions on how the class will be organised, the resources that will be used, and the activities that will take place within the time allocated. It also shows how values, PCIs and competencies shall be mainstreamed in the lesson. Lesson plans are usually propositions made by the teacher on how the lesson shall run, however, the way in which the lesson may run could change spontaneously during the lesson. Lesson plans should be developed by the teacher who will facilitate the lesson as they are better placed to know the type of learners they have, the resources available to them and the context in which the learning shall take place. A sample lesson plan for a competency based curriculum is provided in the appendix of this book. After facilitating a lesson the teacher should indicate what was covered in the lesson and how well the learners achieved the learning outcomes envisaged. This document is called the **record of**

**work book.** The record of work book is important as it indicates what the learners have achieved within a given time. It also enables the school management to track what is happening in the classes in their schools. In case the teacher is absent or leaves the school, the record of work book enables the replacing teacher to pick up from where they left and effectively continue implementing the curriculum. Record of work books should be signed by the teachers and also regularly signed by the school management.

In order to track learner's performance the teacher should also have an **assessment record book**. The book will track the achievement of learning outcomes and competencies acquired by the learners. It will guide the teacher on which learner needs special attention to acquire the skills and competencies stated in the curriculum designs. The information will also be used when reporting learner's progress to their parents.

**Individualized Educational Programme (IEP)**

Another important professional document to support learners to improve their mathematical abilites is the Individualized Educational Programme (IEP) . This document can be used for all categories of learners with Special Needs in Education (SNE). However, not every learner needs an IEP. The teacher is at liberty to identify those learners who may need an IEP and prepare one for such learners as a measure of intervention.

An Individualized Educational Programme (IEP) is a written plan that describes what the teacher and other professionals will do to meet the special needs of the learner. Ideally an IEP should be developed by a multidisciplinary team which may consist of the learner, the regular teacher, a special education teacher, an assessment teacher and other professionals such as psychologists, speech therapists, occupational therapists, physiotherapists, social workers and the parents. An IEP focuses on individual learners needs and allows each learner to acquire knowledge, skills, attitudes and values at his/her own pace

**Components of Individualized Education Programme (IEP)**

**a) The learner's present level of performance.**

The current level of performance of the learner is assessed to identify those skills the learner has strengths in and those that he/she has weaknesses or challenges. This can be done through observation, tests and interviews. For learning purposes, assessment should take place during the lesson. Assessment results may then be used in deciding what to teach and how to teach it.

**b) Long term and short-term learning outcomes**

After collecting information on the learner's strengths and weaknesses, a statement describing what is expected in each area of special learning needs is made. This statement is referred to as a long-term learning outcome. This is the overall aim of the IEP. Long term learning outcomes give direction for an IEP. It states what is expected to be achieved within a specified period for example one month. The long-term outcome is then broken into short term learning outcome. These are competencies that should be developed to achieve the long-term learning outcome.

**c) Evaluation procedure and criteria**

This step describes how progress will be assessed and specifies how well the student is expected to perform. Evaluation criteria must define the standards that are to be used to assess progress or success. It is always good to evaluate progress after a specific short-term learning outcome.

**d) Special educational needs and related services**

The IEP must be clear in listing special needs the learner may be experiencing that call for an IEP. The identified challenges may be addressed by a special needs education teacher in the resource room. If the learner requires other related services in addition to the educational intervention, this should be specified as to whom, when and where these may be provided. Related services may include physiotherapy, occupational therapy,

speech therapy, guidance and counselling among others.

**e) Implementation**

The IEP statement must give the date when the programme will start and the length of time it should take. It can be one year, a term or a month, depending on the skill area and the learner's level of ability. The review date should also be stated. A sample of IEP is appended at the back of this book.

## SUGGESTED ASSESSMENT METHODS

Some assessment methods have been incorporated in the handbook. However, it is important for the teachers to realize that these are only suggestions meant to guide them in selecting the most appropriate assessment method.

Assessment should be a continuous process and should be part of lesson planning. The guide suggests where an assessment is most useful so that it serves the learner's individual needs. Formative assessment is very important in Mathematics as it helps the teacher to understand the varying abilities of the learners. It helps the teacher to make informed decisions on the learning activities to follow. Though the teacher may need to test certain content before the end of a strand, it is recommended that an assessment be done at the end of each sub strand, end of each strand, mid-term and end of the term and year.

Some of the methods of assessment include; Oral testing mainly for brainstorming to assess learner's understanding, Short written puzzles during and at the end of the lesson, Practical work in class to solve some mathematical problems and observation to assess psychomotor and affective domains.

However, certain aspects such as PCIs, values, non-formal domain of learning and other aspects of the reformed curriculum need to be assessed continuously. It is recommended that teachers make use of the assessment rubrics provided in the curriculum designs as a tool of assessment to prepare progress reports of the learners to their parents and guardians.

## HOW TO SUPPORT LEARNERS TO IMPROVE THEIR MATHEMATICAL ABILITIES

Teachers have a duty to help learners develop a culture of reading Mathematics. They have to learn how to it do on their own and they cannot develop this culture unless they are assisted by their teachers. The teacher can improve the learners' learning by guiding them early in their schooling life. One of the ways is to guide the learners to come up with their learning timetable which spans the whole week with one day of rest. It is recommended that learners attend mathematics classes very regularly and if possible without fail because mathematics has very strong inter-strand linkages, hence the more they attend classes, the higher the performance. Some other areas that teachers need to address as they help learners to develop math habits include;

- Let learners know how to get an overview of a topic or strand before doing it. Let them develop a keen interest in the strand review and its learning outcomes. That way, they have an idea of what the strand is about.
- Let the learners know how to question the heading of a strand by restating it as a question. This way, they conceptualize what they are expected to learn.
- The learners do the calculations in the strand as they try to answer the question they formulated. This prepares them for examination questions later.
- The learner should then recite the formulae and other main points of the strand. They write the main points and formulae given in their own words to enhance understanding
- The learner then reviews the entire math book by asking questions and reviewing main points to ensure that they answer all the questions formulated.

The teacher should support the learner all through by creating a conducive environment and encouraging the learner as he/she develops a mathematics culture. This involves allowing them the independence to chart their own learning and to accept and deal with the challenges of acquiring mathematical knowledge and skills.

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## TERM THREE

## INTRODUCTION

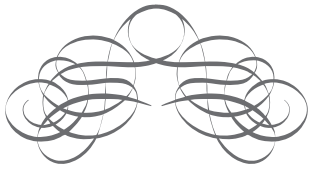
This Teacher's guide has been designed to assist the teacher in facilitating learning of the various concepts in the mathematics curriculum design for Grade 3.This guide emphasizes learner participation in the process of acquisition of knowledge, skills and values (Competencies). In so doing the book has suggested varied activities which the teacher ought to take the learners through. The teacher is at liberty to use any method including the direct instructional method (DIM) that they used earlier in grade 1 and 2.Although the guide has suggested teaching and learning resources and materials, the teacher is advised to be innovative and get more to make learning interesting.

This teacher's guide has been developed using the spiral approach. All the 14 sub strands in the curriculum design will be taught in each of the 3 school terms. The learners will therefore meet the different concepts each term.

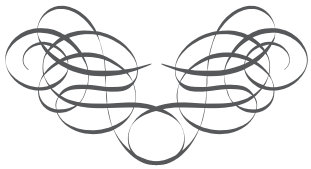
The teachers have been guided on what to teach in each lesson throughout the year. The content has been divided into three terms with term 1 and 2 having 11 weeks each and term 3 having 8 weeks.

At the beginning of each sub strand there is a brief background that informs the teacher on what the learners have covered in the previous years and what the sub strand will be addressing. Finally the guide gives guidance on how the issues in the reformed curriculum could be integrated during the teaching of the various sub strands.

It is hoped that this book will be useful in promoting the teaching and learning of mathematics at this level.



# TERM ONE



**General Learning Outcome**

By the end of this strand, learners should demonstrate mastery of number concepts by working out problems in day to day life.

## NUMBER CONCEPT

**Time - 4 lessons**

**Background Information**

Learners have already learnt how to sort, match and order items either in increasing or decreasing order. The learners at this level are also able to count numbers in symbols up to 100. In this sub strand, leaners will be expected to apply previous knowledge acquired in identifying positions from 1 – 20. Learners will all be expected to play digital games using their LDD or any other IT devices. For learners with hearing impairment the devices should have signed instructions.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism, responsibility among others. The teacher should also involve learners in non-formal activities including counting different types of items in their classroom. The teacher may also discuss how the number concept is linked to language, and Hygiene and Nutrition activities. The teacher may organize visits to homes of the elderly for learners to be told stories of how they used to count their possessions as a way of promoting learning outside the school.

## NUMBER CONCEPT

### Ordinal Number Names (first to fifth)

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to use ordinal number names to identify position from first to fifth.

**Suggested Learning Resources**

- Flash cards
- A chart with pockets labeled positions 1 - 5
- A chart showing position 1 - 5
- Felt pens
- Fields
- Pairs of scissors
- Picture of a van

**Key Inquiry Question**

How do you identify positions?

**Learning Activities**

1. Guide learners to form groups of 6, and then ask 5 of them to engage in a running competition. Discuss safety precautions as they compete.
2. Learners to form a queue as they complete the race at the finishing line. Learner number 6 to assign ordinal numbers to the competitors as first, second, third, fourth and fifth.
3. Discuss the assigning of positions with learners with reference to activity two (2)
4. Using the example in the learner's book page 2, guide learners to use ordinal number names to identify positions.

5. Learners to play digital games involving position. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 3

## Week 1 Lesson 2

### NUMBER CONCEPT

**Ordinal Number Symbols (1st – 5th)**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to use ordinal number symbols to identify position from 1st to 5th.

**Suggested Learning Resources**

- Flash cards
- Felt pens
- Charts with ordinal numbers
- Pictures
- Books
- Water bottle

**Key Inquiry Question**

How do you identify positions?

**Learning Activities**

1. Guide learners in pairs or in groups to arrange 5 mathematics text books on their desks from a point of reference.
2. Learners to place number cards with ordinal number symbols 1st, 2nd, 3rd, 4th and 5th on the books from the point of reference.
3. Discuss the assigning of positions with learners with reference to activity two (2).

4. Using the example in the learner's book page 4 , guide learners to use ordinal number symbols 1st, 2nd, 3rd, 4th and 5th.
5. Learners to play digital games involving position. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 4

## Week 1 Lesson 3

### NUMBER CONCEPT

**Ordinal Numbers 6 to 10**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to use ordinal number names to identify position from 6 to 10.

**Suggested Learning Resources**

- Flash cards
- Felt pens
- Fields
- Pictures
- Charts with ordinal numbers 6 to 10

**Key Inquiry Question**

How do you identify positions?

**Learning Activities**

1. Guide learners to form groups of 11, and then ask 10 of them to engage in a running competition. Discuss the safety precautions as they run.
2. Learners to form a queue as they complete the race at the finishing line. Learner number 11 to assign ordinal numbers to the competitors as first, second, third, fourth up to tenth.

3. Discuss the assigning of positions with learners with reference to activity two (2).
4. Using the example in the learner's book page 6, guide learners to use ordinal number names to identify positions.
5. Learners to play digital games involving positions. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 7

## Week 1 Lesson 4

### NUMBER CONCEPT

**Ordinal Number Symbols 6th to 10th**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to use ordinal number symbols to identify position from 6th to 10th.

**Suggested Learning Resources**

- Flash cards
- Felt pens
- Books
- Pairs of scissors
- Chart with ordinal number symbols
- Pictures
- Pocket chart showing ordinal number symbols.

**Key Inquiry Question**

What do you consider in identifying the position of an item?

**Learning Activities**

1. Guide learners in pairs or in groups to arrange 11 mathematics text books on their desks from a reference point.
2. Learners to place number cards with ordinal number symbols 1st,

2nd, 3rd, 4th up to 10th on the books from the reference point.

3. Discuss the assigning of positions with learners with reference to activity two (2).
4. Using the example in the learner's book page 8 , guide learners to use ordinal number symbols 1st, 2nd, up to 10th.
5. Learners to play digital games involving position.The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 10

## WHOLE NUMBERS

**Time - 7 lessons**

**Background Information**

In grade two learners covered the counting of numbers up to 100. They also identified place value of ones, tens and hundreds as well as reading and writing numbers in words.

In this sub strand these concepts are developed further. Learners will count up to 1000 and identify place value up to thousands. Learners will also make patterns and it is hoped that they will appreciate number patterns as they skip on the number line. The teacher should guide learners in playing digital games related to the sub strand in school and outside school. The digital devices for learners with hearing impairment should contain signed instructions.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism, and responsibility among others. The teacher should also involve learners in non-formal activities including planting flowers following a pattern in the school compound. The teacher may also discuss how the whole

number concept is linked to Language, Environmental, Movement and Creative activities. At home, learners may assist in arranging chairs and tables in rows and columns in community functions as a way of promoting learning outside the school.

## Week 1 Lesson 5

### WHOLE NUMBERS

### Counting in Ones from 1 to 1000

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to count in ones forward and backwards from 1 to 1000.

**Suggested Learning Resources**

- Number cards
- Number line
- Number charts
- Counters

**Key Inquiry Question**

How do you count?

**Learning Activities**

1. Guide learners in pairs or in groups to count objects in ones forward. Discuss the safety precautions as they count.
2. Guide learners in pairs or in groups to count objects in ones both forward and backward. Discuss the safety precautions as they count.
3. Using the example in the learner's book page 11 , guide learners to count in ones forward and backwards from 1to1000.
4. Learners to play digital games involving counting. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 11

## WHOLE NUMBERS

### Counting in Twos

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to count in twos forward and backwards from 1 to 1000.

**Suggested Learning Resources**

- Number cards
- Number line
- Number charts
- Counters

**Key Inquiry Question**

How do you count?

**Learning Activities**

1. Guide learners in pairs or in groups to count objects in twos forward. Discuss the safety precautions as they count.
2. Guide learners in pairs or in groups to count objects in twos both forward and backwards. Discuss the safety precautions as they count.
3. Using the example in the learner's book page 12 , guide learners to count in twos forward and backwards from 1 to1000.
4. Learners to play digital games involving counting. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 12.

## WHOLE NUMBERS

### Place Value: Ones and Tens

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to identify place value up to tens.

**Suggested Learning Resources**

- Bundles of sticks
- Abacus
- Place value chart
- Counters

**Key Inquiry Question**

How do you identify place value?

**Learning Activities**

1. Guide learners in pairs or in groups to represent various numbers using bundles of sticks and loose sticks. Discuss the safety precautions as they use the resources and materials.
2. Ask learners in pairs or in groups to identify ones and tens from the bundles of sticks and loose sticks.
3. Guide learners in pairs or groups to represent various numbers using an abacus. Discuss the safety precautions as they use the abacus.
4. Ask learners in pairs or in groups to identify ones and tens from the abacus/ place value chart.
5. Using the example in the learner's book, page 13 guide, learners to identify place value of ones and tens.
6. Learners to play digital games involving counting. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 14

## Week 2 Lesson 3

**WHOLE NUMBERS**

**Reading and Signing Numbers in Symbols**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to read and sign numbers 1 to100 in symbols.

**Suggested Learning Resources**

- Hundred number chart
- Flashcards

**Key Inquiry Question**

What can we use to represent groups of objects?

**Learning Activities**

1. Guide learners in pairs or in groups to read and sign the numbers between 1 to 100 in turns using the number chart.
2. Ask learners to read and sign numbers as shown/displayed on flash cards.
3. Using the activities in the learner's book, guide the learners in reading and signing whole numbers 1 to 100.
4. Learners to play digital games involving numbers. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book.

## WHOLE NUMBERS

### Reading, Signing and Fingerspelling Numbers in Words

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to read, sign and fingerspell numbers 1 to 50 in words.

**Suggested Learning Resources**

- Number chart with number symbols and number names.
- Flash cards with number symbols
- Flash cards with number names

**Key Inquiry Question**

How do we write number symbols in words?

**Learning Activities**

1. Guide learners in pairs or in groups to read, sign and fingerspell the numbers 1 to 50 in words.
2. Ask learners in pairs or in groups to match number symbols with number words 1 to 50.
3. Ask learners to read ,sign and fingerspell numbers 1 to 50 in words.
4. Using the activity in the learner's book page 16 , guide learners to read,sign and fingerspell numbers 1 to 50 in words.
5. Learners to play digital games involving numbers. The digital devices should have signed or fingerspelt instructions.

**Work to do**

Learners to work out questions from the learner's book page 16

## WHOLE NUMBERS

### Writing Numbers in Words

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to write numbers 1 to 50 in words.

**Suggested Learning Resources**

- Number chart with number symbols and number names.
- Flash cards with number symbols
- Flash cards with number names

**Key Inquiry Question**

How can numbers in symbols be written in words?

**Learning Activities**

1. Guide learners in pairs or in groups to write numbers 1 to 50 in words.
2. Ask learners in pairs or in groups to match number symbols with number words 1 to 50 using the number chart.
3. Ask learners to write numbers 1 to 50 in words.
4. Using the activity in the learner's book page 17 , guide learners to write whole numbers 1 to 50 in words.
5. Learners to play digital games involving numbers. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 17

## WHOLE NUMBERS

### Number Patterns

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to work out missing numbers in number patterns 1 to 10.

**Suggested Learning Resources**

- Number cards
- Number line
- Number charts
- Counters

**Key Inquiry Question**

How do you identify a missing number in a pattern?

**Learning Activities**

1. Ask learners in pairs or in groups to arrange numbers on number cards in an increasing order 1 to10.
2. Guide learners to create a pattern by removing a card and skipping the next. Learners to write the resulting pattern.
3. Guide learners in pairs or groups to create patterns using a number line.
4. Ask learners in pairs or in groups to arrange numbers on number cards in a decreasing order 10 to 1.
5. Guide learners to create a pattern by removing a card and skipping the next in a decreasing order and write the resulting pattern.
6. Using examples in the learners book page 18 , guide learners to work out the missing numbers in a number pattern.
7. Learners to play digital games involving numbers. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 18

## Week 3 Lesson 2

## WHOLE NUMBERS

### Number Patterns

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to work out missing numbers in number patterns 1 to 100.

**Suggested Learning Resources**

- Number charts
- Number cards
- Number line
- Counters

**Key Inquiry Question**

How do you identify missing numbers in a pattern?

**Learning Activities**

1. Ask learners in pairs or in groups to arrange number cards in an increasing order from 1 to 100.
2. Guide learners in creating a pattern by removing a card(s) and skipping one or more to the next, read,sign and write the pattern.
3. Ask learners in pairs or in groups to arrange numbers on number cards in a decreasing order 100 to 1.
4. Guide learners to create a pattern by removing a card(s) and skipping one or more to the next, read, sign and write the pattern.
5. Using activities in the learner's book page 19 , guide learners to work out missing numbers in number patterns.
6. Learners to play digital games involving numbers. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 20

## FRACTIONS

**Time - 4 lessons**

**Background Information**

In this sub strand learners will be introduced to a fraction as part of a whole and as part of a group. Learners may, however, have experiences from home where they have shared whole items like fruits, sweets or even bread.

It is from this background that the teacher can introduce a half (½), a quarter (¼) and an eighth (⅛) as part of a whole using items like an orange, piece of stick, loaf of bread, circular and rectangular cut-outs. In introducing fractions as part of a group the teacher may use items like pebbles, marbles, sticks, bottle tops or any other safe type of counter. Knowledge of division, sorting and grouping acquired in earlier grades will be useful in this sub strand.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of some of the basic education curriculum core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should also involve learners in non-formal activities including sharing edible food items in halves and quarters in school. The teacher may also discuss how the concept on fractions is linked to Language and Hygiene and nutrition activities. Learners may assist in sharing items in halves and quarters in community functions as a way of promoting learning outside the school

## Week 3 Lesson 3

## FRACTIONS

**Half as Part of a Whole**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to identify half as part of a whole.

**Suggested Learning Resources**

- Manilla cutouts
- Pair of scissors
- Straws
- Strings
- Sticks

**Key Inquiry Question**

How do we represent half as part of a whole?

**Learning Activities**

1. Guide learners in pairs or in groups to cut circular cutouts. Discuss the safety precautions when handling sharp objects.
2. Guide learners to fold the circular cutouts into 2 equal parts.
3. Guide learners to identify one part as half of the whole.
4. Ask learners to make rectangular cutouts and fold into 2 equal parts to get halves.
5. Using activities in the learner's book page 21 , guide learners to identify half as part of a whole.
6. Learners to play digital games involving fractions. The digital devices should have signed intructions.

**Work to do**

Learners to work out questions from the learner's book page 22

## Week 3 Lesson 4

### FRACTIONS

**Quarter as Part of a Whole**

**Specific Lesson Learning Outcome**

By the end of the lesson the learner should be able to identify quarter as part of a whole.

**Suggested Learning Resources**

- Manilla Cutouts
- Pairs of scissors
- Straws
- Strings
- Sticks

**Key Inquiry Question**

How do we represent a quarter as part of a whole?

**Learning activities**

1. Guide learners in pairs or in groups to cut rectangular cutouts. Discuss the safety measures when handling the sharp objects.
2. Guide learners to fold the rectangular cutouts into 4 equal parts.
3. Guide learners to identify that each part is a quarter of the whole.
4. Using activities in the learner's book page 23 , guide learners to identify quarter as part of a whole.
5. Learners to play digital games involving fractions. The digital devices should have signed intructions.

**Work to do**

Learners to work out questions from the learner's book page 24

## Week 3 Lesson 5

### FRACTIONS

**Comparing a Half and a Quarter**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to compare a half and a quarter as part of a whole.

**Suggested Learning Resources**

- Circular cutouts
- Manila rectangular cutouts
- Pairs of scissors
- Straws
- Strings
- Sticks

**Key Inquiry Question**

How do we compare two fractions?

**Learning activities**

1. Guide learners in pairs and in groups to cut circular and rectangular cutouts. Discuss safety measures when handling the sharp objects.
2. Ask learners to fold the cutouts into 2 and 4 equal parts respectively.
3. Ask learners to identify the half and the quarter parts respectively.
4. Guide learners to compare the half and the quarter.
5. Using the activity in the learner's book page 25, guide learners to identify and compare half and quarter as part of a whole.
6. Learners to play digital games involving fractions. The digital devices should have signed intructions.

**Work to do**

Learners to work out questions from the learner's book page 25

# FRACTIONS

## A Half as Part of a Group

### Specific Lesson Learning Outcome

By the end of the lesson, the learner should be able to identify a half as part of a group.

### Suggested Learning Resources

- Bottle tops of assorted colours
- Sticks
- Seeds
- Straws

### Key Inquiry Question

How do we represent half of a group?

### Learning activities

1. Demonstrate equal sharing of counters in groups. Ask learners in pairs to share bottle tops equally and separate them into two equal groups.
2. Ask learners to count the number of bottle tops each group has.
3. Guide learners to identify each group of bottle tops as half of the whole group.
4. Using the example in the learner's book page 26, guide learners to identify half as part of a group.
5. Learners to play digital games involving fractions. The digital devices should have signed intructions.

### Work to do

Learners to work out questions from the learner's book page 27

## ADDITION

**Time - 8 lessons**

**Background Information**

Addition of up to two 2-digit numbers with and without regrouping has already been covered in the previous grades. Learners have also learnt how to work out missing numbers in patterns involving addition up to 100. This sub strand will build on this knowledge to extend the addition of whole numbers. Learners will therefore be involved in the addition of up to two 3-digit numbers with single regrouping in ones or tens. The concept of number patterns involving addition is also extended to 1000. The teacher can search for digital games that involve addition and guide the learners in playing them. Digital devices for learners with hearing impairment should have signed instructions.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should also involve learners in non-formal activities including planting flowers in patterns in school. The teacher may also discuss how the addition concept is linked to Languages and Hygiene and Nutrition activities. The teacher may organize visits to older citizen's homes for learners to assist them in working out the total number of different items in their homes as a way of extending learning outside the school.

NB : For the learners with hearing impairments, the teacher is at liberty to use alternative methods of guiding learners to understand the concept where regrouping is challenging to understand.

## ADDITION

### Adding a 3- digit number to a 1- digit number

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add a 3-digit number to a 1- digit number without regrouping vertically and horizontally with sum not exceeding 1000.

**Suggested Learning Resources**

- Place value tins
- Place value chart
- Abacus
- Counters

**Key Inquiry Question**

How do we add a 3-digit number to a 1-digit number?

**Learning Activities**

1. Guide learners in groups to use the abacus in adding a 3-digit number to a 1- digit number without regrouping. Discuss the safety precautions when handling the resource materials.
2. Guide learners in groups to discuss how to add a 3-digit number to a 1- digit number without regrouping vertically and horizontally.
3. Using examples in the learner's book page 30 , guide learners to add a 3-digit number to a 1- digit number without regrouping
4. Learners to play digital games involving addition. The digital devices should have signed intructions.

**Work to do**

Learners to work out questions from the learner's book page 31

## ADDITION

### Adding a 3-digit number to a 1-digit number

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add a 3- digit number to a 1- digit number with regrouping with sum(total)not exceeding 1000 vertically and horizontally.

**Suggested Learning Resources**

- Place value tins
- Place value chart
- Abacus
- Counters

**Key Inquiry Question**

How do we add a 3-digit number to a 1-digit number with regrouping?

**Learning Activities**

1) Guide learners in pairs or in groups in using an abacus to add a 3-digit number to a 1-digit number with regrouping by separating.
2) Ask learners in pairs to discuss how to add a 3-digit number to a 1-digit number with regrouping by separating vertically and horizontally.
3) Using examples in the learner's book page 33, guide learners to add a 3-digit number to a 1- digit number with regrouping by separating.
4) Learners to play digital games involving addition. The digital devices should have signed intructions.

**Work to do**

Learners to work out questions from the learner's book page 33

## ADDITION

### Adding a 3-digit number to a 2-digit number

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add a 3-digit number to a 2- digit number without regrouping with sum not exceeding 1000 vertically and horizontally.

**Suggested Learning Resources**

- Place value tins
- Place value chart
- Abacus
- Counters

**Key Inquiry Question**

How do we add a 3-digit number to a 2-digit number?

**Learning Activities**

1) Guide learners in pairs or in groups in using the place value chart to add a 3-digit number to a 2-digit number without regrouping vertically and horizontally.
2) Ask learners in pairs to discuss how to add a 3-digit number to a 2-digit number without regrouping vertically and horizontally.
3) Using activities in the learner's book page 34, guide learners to add a 3-digit number to a 2-digit number without regrouping.
4) Learners to play digital games involving addition. The digital devices should have signed intructions.

**Work to do**

Learners to work out questions from the learner's book page 35.

## ADDITION

### Adding a 3-digit number to a 2-digit number

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add a 3-digit number to a 2-digit number with single regrouping with sum (total) not exceeding 1000 vertically and horizontally.

**Suggested Learning Resources**

- Place value tins
- Abacus
- Place value chart
- Counters

**Key Inquiry Question**

How do we add numbers with regrouping?

**Learning Activities**

1) Guide learners in pairs or in groups in using the abacus to add a 3-digit number to a 2-digit number with single regrouping by separating vertically. Discuss the safety precautions when handling the resources and materials.
2) Ask learners in pairs to discuss how to add a 3-digit number to a 2-digit number with single regrouping by separating vertically and horizontally.
3) Using examples in the learner's book page 38, guide learners to add a 3-digit number to a 2-digit number with single regrouping by separating.
4) Learners to play digital games involving addition. The digital devices should have signed intructions.

**Work to do**

Learners to work out questions from the learner's book page 39

## ADDITION

### Adding 3-single digit numbers

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add 3-single digit numbers with sum (total) not exceeding 10.

**Suggested Learning Resources**

- Bottle tops
- Sticks
- Grains
- Number line

**Key Inquiry Question**

How do we add 3-single digit numbers?

**Learning Activities**

1) Guide learners in pairs or in groups to add 3-single digit numbers with sum (total) not exceeding 10 using concrete objects and the number line. Discuss the safety precautions when handling the resources and materials.
2) Ask learners in pairs to discuss how to add 3-single digit numbers with sum (total) not exceeding 10.
3) Using activities in the learner's book page 40, guide learners to add 3-single digit numbers with sum (total) not exceeding 10.
4) Learners to play digital games involving addition. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 41

## ADDITION

### Adding two 3-digit numbers

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add two 3-digit numbers vertically and horizontally without regrouping with sum (total) not exceeding 500.

**Suggested Learning Resources**

- Place value tins
- Place value chart
- Abacus
- Counters

**Key Inquiry Question**

How do we add two 3-digit numbers?

**Learning Activities**

1) Guide learners in pairs or in groups in using the place value chart to add two 3-digit numbers vertically and horizontally without regrouping with sum (total) not exceeding 500.
2) Ask learners in pairs to discuss how to add two 3-digit numbers vertically and horizontally without regrouping with sum (total) not exceeding 500.
3) Using examples in the learner's book page 43, guide learners to add 3-digit numbers vertically and horizontally without regrouping with sum (total) not exceeding 500.
4) Learners to play digital games involving addition. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 43

## Adding two 3-digit numbers

### Specific Lesson Learning Outcome

By the end of the lesson, the learner should be able to add two 3-digit numbers with single regrouping with sum (total) not exceeding 1000 vertically and horizontally.

### Suggested Learning Resources

- Place value tins
- Place value chart
- Abacus
- Counters

### Key Inquiry Question

How do we add two 3-digit numbers vertically?

### Learning Activities

1) Guide learners in pairs or in groups to use the place value chart to add two 3- digit numbers with single regrouping by separating vertically.
2) Ask learners in pairs to discuss how to add two 3-digit numbers vertically and horizontally with single regrouping by separating with sum (total)not exceeding 1000.
3) Using examples in the learner's book page 44, guide learners to add two 3-digit numbers vertically and horizontally with single regrouping by separating with sum (total) not exceeding 1000.
4) Learners to play digital games involving addition. The digital devices should have signed instructions.

### Work to do

Learners to work out questions from the learner's book page 45

## ADDITION

### Number Patterns

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to fill in the missing numbers in number patterns up to 1000 involving addition.

**Suggested Learning Resources**

- Number cards
- A hundred number chart
- Pocket boards
- Number line

**Key Inquiry Question**

How do you find missing numbers in number patterns?

**Learning Activities**

1. Guide learners in pairs or in groups to use number cards, hundred number chart, and pocket boards to fill in the missing numbers in number patterns involving addition.
2. Learners in pairs to discuss and come up with different ways of filling in the missing numbers in number patterns up to 1000 involving addition.
3. Using examples in the learner's book page 48 , guide learners to fill in missing numbers in number patterns up to 1000 involving addition.
4. Learners to play digital games involving addition. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 49

## SUBTRACTION

**Time - 7 lessons**

**Background Information**

Subtraction was introduced in earlier grades as taking away. In grade two, subtraction of up to 2-digit numbers without regrouping was covered. The relationship between addition and subtraction as well as number pattern involving subtraction is also covered in grade two. It is on this pre-requisite that the concept of subtraction of up to 3-digit numbers is developed. Missing numbers in patterns involving subtraction of up to 1000 will also be taught under this sub strand.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility, among others. The teacher should also involve learners in non-formal activities including collecting litter in the school compound. The teacher may also discuss how the subtraction concept is linked to Languages and Environmental activities. Learners may participate in cleaning environmental activities organized by community member**s** as a way of promoting learning outside the school.

## SUBTRACTION

### Subtracting a 1-digit number from a 2-digit number

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to subtract a 1-digit number from a 2-digit number without regrouping.

**Suggested Learning Resources**

- Place value tins
- Place value chart
- Abacus
- Counters

**Key Inquiry Question**

How do we subtract numbers?

**Learning Activities**

1. Guide learners in pairs or in groups in using the place value apparatus to subtract a1-digit number from a 2-digit number without regrouping. Discuss the safety precautions when handling the resources and materials.
2. Learners in pairs to discuss and come up with different ways of subtracting a1-digit number from a 2-digit number without regrouping.
3. Using examples in the learner's book page 50 , guide learners to subtract a1-digit number from a 2-digit number without regrouping.
4. Learners to play digital games involving subtraction. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 51

## SUBTRACTION

### Subtracting two 2-digit numbers

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to subtract two 2-digit numbers without regrouping.

**Suggested Learning Resources**

- Place value tins
- Place value chart
- Abacus
- Counters

**Key Inquiry Question**

How do we subtract two 2-digit numbers?

**Learning Activities**

1. Guide learners in pairs or in groups to use the abacus in subtracting two 2-digit numbers without regrouping. Discuss the safety precautions when handling the resources and materials.
2. Learners in pairs to discuss and come up with different ways of subtracting two 2-digit numbers without regrouping.
3. Using activities in the learner's book page 52 , guide learners to subtract two 2-digit numbers without regrouping.
4. Learners to play digital games involving subtraction. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 54

## SUBTRACTION

### Subtracting a 1-digit number from a 2-digit number

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to subtract a 1-digit number from a 2-digit number with single regrouping.

**Suggested Learning Resources**

- Place value tins
- Bundles of sticks and loose sticks/straws
- Place value chart
- Abacus

**Key Inquiry Question**

How do we subtract numbers?

**Learning Activities**

1. Guide learners in pairs or in groups to use bundles of sticks and loose sticks to subtract a 1-digit number from a 2-digit number with single regrouping by breaking.

   Discuss the safety precautions when handling the resources and materials.
2. Learners in pairs or in groups to discuss and come up with different ways of subtracting a 1-digit number from a 2-digit number with single regrouping by breaking.
3. Using examples in the learner's book page 56 , guide learners to subtract a 1-digit number from a 2-digit number with single regrouping by breaking.
4. Learners to play digital games involving subtraction. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 56

## SUBTRACTION

### Subtracting two 2-digit numbers

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to subtract two 2-digit numbers with regrouping.

**Suggested Learning Resources**

- Place value tins
- Place value charts
- Abacus
- Counters

**Key Inquiry Question**

How do we subtract numbers?

**Learning Activities**

1. Guide learners in pairs or in groups to use the place value chart to subtract two 2-digit numbers with regrouping by breaking.
2. Learners in pairs to discuss and come up with different ways of subtracting two 2-digit numbers with regrouping by breaking.
3. Using examples in the learner's book page 57 , guide learners to subtract two 2-digit numbers with regrouping by breaking.
4. Learners to play digital games involving subtraction. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 58

## SUBTRACTION

### Subtracting multiples of 10

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to subtract multiples of 10 up to 100.

**Suggested Learning Resources**

- Place value tins
- Number line
- Place value chart
- Abacus
- Counters

**Key Inquiry Question**

How do we subtract multiples of ten?

**Learning Activities**

1. Guide learners in pairs or in groups to use the place value chart in subtracting multiples of 10 up to 100.
2. Learners in pairs to discuss and come up with different ways of subtracting multiples of 10 up to 100.
3. Using the example in the learner's book page 59, guide learners to subtract multiples of 10 up to 100.
4. Learners to play digital games involving subtraction. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 59

## SUBTRACTION

### Subtracting a 2-digit number from a 3-digit number

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to subtract a 2-digit number from a 3-digit number without regrouping.

**Suggested Learning Resources**

- Place value tins
- Place value charts
- Abacus
- Counters

**Key Inquiry Question**

How do we subtract numbers?

**Learning Activities**

1. Guide learners in pairs or in groups to use the place value chart to subtract a 2-digit number from a 3-digit number without regrouping.
2. Learners in pairs to discuss and come up with different ways of subtracting a 2-digit number from a 3-digit number without regrouping.
3. Using examples in the learner's book page 60 , guide learners to subtract a 2-digit number from a 3-digit number without regrouping.
4. Learners to play digital games involving subtraction. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 61

## SUBTRACTION

### Number patterns

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to work out missing numbers in number patterns up to 100 involving subtraction.

**Suggested Learning Resources**

- Number cards
- A hundred chart
- Pocket boards
- Number line

**Key Inquiry Question**

How do we work out missing numbers in number patterns?

**Learning Activities**

1. Guide learners in pairs or in groups to use number cards/hundred chart/ pocket boards to work out missing numbers in number patterns.
2. Learners in pairs to discuss and come up with different ways of working out missing numbers in number patterns up to 100 involving subtraction.
3. Using examples in the learner's book page 62, guide learners to work out missing numbers in number patterns up to 100 involving subtraction.
4. Learners to play digital games involving subtraction. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 63

## MULTIPLICATION

**Time - 3 lessons**

**Background Information**

Multiplication is introduced in grade two as repeated addition. In the modeling of these activities, the learners form groups with equal number of objects, then put them together and count to get the total number which is the answer to a multiplication question. It is hoped that the teachers will use equal groups of objects a number of times to relate repeated addition with multiplication sentences.

The concept of repeated addition is further developed in this sub strand where learners are expected to multiply single digit numbers by numbers up to 10. Digital games on multiplication should be included to make the lesson interesting and for learners to link multiplication to everyday activities. For the learners with hearing impairment, the digital devices should contain signed instructions.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should also involve learners in non-formal activities like working out the total number of desks in their classroom through repeated addition. The teacher may also discuss how the multiplication concept is linked to Languages and Environmental activities .Learners may visit older citizens and assist them in arranging items in groups of equal numbers as a way of promoting learning outside the school

## MULTIPLICATION

### Multiplying Numbers 1 to 10 by 2 and 3

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to multiply numbers 1 to10 by 2 and 3.

**Suggested Learning Resources**

- Counters
- Multiplication table
- Number arrays

**Key Inquiry Question**

How do we use repeated addition to work out multiplication?

**Learning activities**

1. Guide learners in pairs or in groups on using counters to multiply numbers 1 to 10 by 2 and 3 using repeated addition.
2. Learners in pairs to discuss and come up with different ways of working out multiplication as repeated addition.
3. Using examples in the learner's book page 64 , guide learners to work out multiplication of numbers 1 to 10 by 2 and 3.
4. Learners to play digital games on multiplication. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 64

# MULTIPLICATION

## Multiplying Numbers 1 to 10 by 4 and 5

### Specific Lesson Learning Outcome

By the end of the lesson, the learner should be able to multiply numbers 1 to 10 by 4 and 5.

### Suggested Learning Resources

- Counters
- Number arrays
- Multiplication table

### Key Inquiry Question

How do we use multiplication table to work out multiplication?

### Learning activities

1. Guide learners in pairs or groups to work out multiplication of numbers 1 to 10 by 4 and 5 using the multiplication table.
2. Learners in pairs to discuss and come up with different ways of working out multiplication of numbers 1 to 10 by 4 and 5.
3. Using examples in the learner's book page 66 , guide learners to work out multiplication of numbers 1 to 10 by 4 and 5 using a multiplication table.
4. Learners to play digital games on multiplication. The digital device should have signed instructions.

### Work to do

Learners to work out questions from the learner's book page 67

## MULTIPLICATION

### Multiplying Numbers 1 to 10 by 10

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to multiply numbers 1 to 10 by 10.

**Suggested Learning Resources**

- Counters
- Number arrays
- Multiplication table

**Key Inquiry Question**

How do we use multiplication table to work out multiplication?

**Learning activities**

1. Guide learners in pairs or in groups to work out multiplication of numbers 1 to 10 by 10 using the multiplication table.
2. Learners in pairs to discuss and come up with different ways of working out multiplication of numbers 1 to 10 by 10.
3. Using the example in the learner's book page 68, guide learners to work out multiplication of numbers 1 to 10 by 10.
4. Learners to play digital games on multiplication. The digital device should have signed instructions.

**Work to do**

Learners work out questions from the learner's book page 69 .

## DIVISION

**Time - 3 lessons**

**Background Information**

Division is taught for the first time in this grade. However, it is not a new concept as learners have had experiences in their day to day life or even during play. Division is introduced as repeated subtraction hence it is important for the learners to have mastered subtraction of whole numbers. In this sub strand the relationship between multiplication and division will be taught and the learners will be expected to use the multiplication table to get the result of division questions as division is the inverse of multiplication. Digital games involving division will enhance the development of this concept. For learners with hearing impairment the digital device should have signed instructions.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should also involve learners in non-formal activities including planting seedlings in rows in the school compound. The teacher may also discuss how the division concept is linked to Languages and Environmental activities. Learners could visit children's homes and share fruits with them as a way of giving back to the community.

# DIVISION

## Dividing Single Digit Numbers

### Specific Lesson Learning Outcome

By the end of the lesson, the learner should be able to divide single digit numbers through repeated subtraction.

### Suggested Learning Resources

- Counters
- Number line

### Key Inquiry Question

**How do we divide numbers using repeated subtraction?**

### Learning Activities

1) Learners to form groups of objects. They take away from the group a specific number of counters at a time until all are finished. Count the number of times a group of objects have been removed from the larger group. Discuss safety precautions when using resources and materials.
2) Guide learners to write division sentences from the repeated subtraction in activity one (1).
3) Using the example in the learner's book page 70 , guide learners to divide single digit numbers through repeated subtraction.
4) Learners play digital games involving division. The digital device should have signed instructions.

### Work to do

Learners to work out questions from the learner's book page 70,

## DIVISION

### Division of up to 25 by 2, 3, 4 and 5

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to divide numbers up to 25 by 2, 3, 4 and 5 through repeated subtraction.

**Suggested Learning Resources**

- Counters
- Number line

**Key Inquiry Question**

**How do we divide numbers using repeated subtraction?**

**Learning Activities**

1. Learners to form groups of counters. Ask learners to take away from the group a specific number of counters at a time until all are finished. Count the number of times a group of objects have been removed from the larger group. Discuss safety precautions when using resources and materials.
2. Guide learners to skip a given number of steps backwards uniformly from a given number on the number line until they stop at zero. Ask learners to count the number of jumps made.
3. Ask learners to write a division sentence as repeated subtraction.
4. Using examples in the learner's book page 71 , guide learners to divide numbers up to 25 by 2, 3, 4 and 5 through repeated subtraction.
5. Learners play digital games involving division. The digital device should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 72

# DIVISION

## Relationship between Multiplication and Division

### Specific Lesson Learning Outcome

By the end of the lesson, the learner should be able to relate division and multiplication using multiplication sentences up to 5x5.

### Suggested Learning Resources

- Multiplication table
- Counters

### Key Inquiry Question

How do we use the multiplication table to work out division questions?

### Learning Activities

1. Guide learners to read and sign a given number in the multiplication table.
2. Guide learners to move horizontally on the row of the number and vertically in the column of the number to identify the numbers being multiplied.
3. Using the example in the learner's book page 74 , guide learners to discuss the relationship between division and multiplication using the multiplication table.
4. Learners to play digital games involving division. The digital device should have signed instructions.

### Work to do

Learners to work out questions from the learner's book page 75

**General Learning Outcome**

By the end of this strand, the learner should be able to describe properties of geometrical shapes and spatial relationships in real life experiences.

## LENGTH

**Time - 2 lessons**

**Background Information**

The development of the concepts under measurements follows clearly defined stages. In earlier grades, under the sub strand on Length, learners compare lengths of objects directly, measure length using arbitrary units and finally measure length using fixed arbitrary units.

In this sub strand learners will be involved in measuring length in metres. The learners will also be expected to be able to estimate lengths up to 20 metres hence they should be involved in many measuring activities for them to be able to estimate.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility, among others. The teacher should also involve learners in non-formal activities including measuring lengths of fields in school during games. The teacher may also discuss how the length concept is linked to Languages and Environmental activities. Learners may assist their neighbours to measure length during building of chicken/rabbit cages, among others, as a way of promoting learning outside the classroom.

## LENGTH

### Measuring Length in Metres

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to measure length in metres.

**Suggested Learning Resources**

- Metre rule
- 1 Metre sticks
- String

**Key Inquiry Question**

How do we measure length?

**Learning Activities**

1. Guide learners in pairs or groups to prepare one-metre sticks from a metre rule. Discuss safety precautions when using resources and materials.
2. Guide learners in pairs to measure the lengths of different objects in metres and share their experiences/findings.
3. Using the activity in the learner's book page 76, guide learners to measure length in metres of various objects.
4. Learners to play digital games involving length. The digital device should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 76

## LENGTH

### Estimating Length

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to estimate length up to 20 metres.

**Suggested Learning Resources**

- Metre rule
- 1 Metre sticks
- 5 metre Strings

**Key Inquiry Question**

How do we measure length in metres?

**Learning Activities**

1. Guide learners in pairs or groups to prepare 5 metre long strings with knots at intervals of 1 metre. Discuss safety precautions when using resources and materials.
2. Ask learners in pairs or groups to go out to the field and estimate various distances such as length of the football, basketball and netball fields, tuition block, foot paths and record their estimates.
3. Ask learners in pairs or groups to measure and record lengths of the various distances using the 5 meter string.
4. Learners in pairs or groups to compare the estimates and the measured lengths to determine how close their estimates were. Ask learners to share their findings with other groups.
5. Using the example in the learner's book page 77 , guide learners to estimate lengths.
6. Learners to play digital games involving length.The digital device should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 78

## MASS

**Time - 2 lessons**

**Background Information**

The development of the concepts under measurements follows clearly defined stages. In earlier grades, under the sub strand on Mass, learners compare mass of objects directly, measure mass using arbitrary units and finally measure mass using fixed arbitrary units.

In this sub strand learners will be involved in measuring mass in kilograms and also in adding and subtracting mass in kilograms. The learners will also be expected to be able to estimate mass up to 5 kilograms hence they should be involved in many measuring activities using a beam balance or measuring scale for them to be able to estimate.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of some of the core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should involve learners in non-formal activities including measuring mass of items in their classroom in kilograms during their free time. The teacher may also discuss how the mass concept is linked to Languages and Environmental activities. Learners to assist their neighbours in measuring mass of items in their homes in kilograms as a way of promoting learning outside the classroom.

# MASS

## Measuring Mass

### Specific Lesson Learning Outcome

By the end of the lesson, the learner should be able to measure mass in kilograms.

### Suggested Learning Resources

- Beam balance
- Packets of Maize seeds
- Packets of Bean seeds
- 1 kilogram mass
- Chalkboard dusters
- Mathematics Text books

### Key Inquiry Question

How can we make a 1kg mass using a beam balance?

### Learning Activities

1. Ask learners to collect sand or soil from the environment and provide them with beam balances. Guide learners on safety precautions when doing the activity.
2. Ask learners in pairs or groups to discuss how they will use the beam balances and the soil or sand to make 1 kg mass.
3. Guide learners in pairs or groups in making 1kilogram masses using the sand or soil and the beam balances.
4. Guide learners in pairs or groups in measuring mass of other objects such as beans using the 1 kilogram mass. Ask learners to share their experiences with other groups.

5. Using the activities in the learner's book page 79 , guide learners to measure mass in kilograms.
6. Learners to play digital games involving mass. The digital device should have signed instructions.

**Work to do**

Learners to work out activity from the learner's book page 79

# MASS

## Estimating Mass

### Specific Lesson Learning Outcome

By the end of the lesson, the learner should be able to estimate mass up to 5 kilograms.

### Suggested Learning Resources

- Five 1- kilogram masses
- Objects of different masses

### Key Inquiry Question

How do we estimate mass in kilograms?

### Learning Activities

1. Provide learners in pairs or groups with objects of different masses and beam balances. Ask learners in pairs or groups to estimate masses of different objects and record.
2. Ask learners in pairs or groups to discuss how they will use the beam balances and 1kg masses to measure mass of different objects up to 5 kg.
3. Guide learners in pairs or groups to measure the mass of different objects using a beam balance and the 1kg masses and record next to the estimates from activity (1). Ask learners to share their findings with other groups.
4. Using the activities in the learner's book page 80 , guide learners to estimate mass up to 5 kilograms.
5. Learners to play digital games involving mass. The digital device should have signed instructions.

### Work to do

Learners to work out activity from the learner's book page 80

## CAPACITY

**Time - 2 lessons**

**Background Information**

The development of the concepts under measurements follows clearly defined stages. In earlier grades, under the sub strand on capacity, learners compare capacity of containers directly through filling and emptying using water, measure capacity of containers using arbitrary units, and finally measure capacity of containers using fixed arbitrary units.

In this sub strand learners will be involved in measuring capacity in litres and also in adding and subtracting capacity in litres. The learners should be involved in a variety of measuring activities using a 1- litre container for them to be able estimate capacity up to 5 litres.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should involve learners in non-formal activities including measuring capacity of containers in their classroom in litres during their free time. The teacher may also discuss how capacity is linked to Languages and Environmental activities. As a way of promoting learning outside the classroom learners may assist their neighbours in measuring capacity of containers used for storing liquids

## Week 9 Lesson 2

## CAPACITY

**Measuring Capacity**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to measure capacity in litres.

**Suggested Learning Resources**

- 1 litre containers
- Water
- Containers of various capacities.

**Key Inquiry Question**

What can we use to measure capacity?

**Learning Activities**

1. Provide learners in pairs or groups with a1-litre container and other containers of various capacities. Ask learners to discuss how to use the 1-litre container to measure the capacity of the other containers.
2. Ask learners in pairs or in groups to use the 1-litre container to measure capacity of other containers and record. Ask learners to share their findings with other groups.
3. Using the activity in the learner's book page 81, guide learners to measure the capacity of the containers.
4. Learners to play digital games involving capacity. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 81

## Week 9 Lesson 3

## CAPACITY

### Estimating Capacity

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to estimate capacity up to 5 litres.

**Suggested Learning Resources**

- 1 litre containers

- Water
- Containers of various capacities

**Key Inquiry Question**

How do we estimate capacity?

**Learning Activities**

1. Ask learners in groups or pairs to estimate capacity of the various containers and record their estimation.
2. Ask learners in groups or pairs to measure the capacity of containers in activity one (1) and record alongside their estimation.
3. Learners in groups to discuss difference between the estimate and the actual capacity. Ask learners to share their findings with other groups.
4. Using the activity in the learner's book page 82, guide learners to estimate the capacity of containers.
5. Learners to play digital games involving capacity. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 82.

## TIME

**Time - 4 lessons**

**Background Information**

The concept of time is introduced by relating daily activities to different times of the day like morning, noon, evening and night while the days and months of the year are related to the various activities done in a particular day or month. Time just like other measurements is first measured using arbitrary units before using the standard units which include hours, minutes and seconds. In this sub strand, reading and telling of time involves both the analogue and digital clocks. When

dealing with addition and subtraction of units of time, the teacher should bring out real life experiences in which duration of time can be comprehended. Estimation of time is an important aspect in day to day life hence learners should be involved in estimating time durations.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should involve learners in non-formal activities including cleaning their classroom during free time. The teacher may also discuss how the time concept is linked to Language activities and Religious activities. As a form of community service learning activity learners could assist their neighbours in keeping their compounds clean during school holidays.

**NB:** For learners with hearing impairment, the concept of time and activities involved in teaching and learning, an extra lesson may be needed.The teacher to initiate such arrangement.

## Week 9 Lesson 4

### TIME

**The Hour Hand and Minute Hand**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to identify the hour hand and the minute hand.

**Suggested Learning Resources**

- Manila cutouts
- Pair of scissors

- Clock face
- Felt pen
- Digital clock

**Key Inquiry Question**

What is the difference between the hour and the minute hand of a clock?

**Learning Activities**

1. Guide learners in pairs or in groups to cut circular cut outs 15 cm wide and two strips of manila paper, a short and a longer one. Discuss safety when handling resources and materials.
2. Guide learners to make a clock face with materials in (1) above, marking on the circular cut out numbers 1 to 12.
3. Guide learners to fix on the clock face the two strips at the centre. Ask learners to identify the hour hand and the minute hand using the clock face.
4. Using the activity in the learner's book page 83, guide learners to identify the hour hand and the minute hand.
5. Learners to play digital games involving time. The digital device should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 83.

## Week 9 Lesson 5

**Relationship between the Hour Hand and Minute Hand**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to identify the relationship between the hour hand and minute hand.

**Suggested Learning Resources**

- Manila cutouts
- Pair of scissors
- Clock face
- Felt pen
- Digital clock

**Key Inquiry Question**

What is the relationship between the hour and minute hand of a clock?

**Learning activities**

1. Guide learners in pairs or in groups to discuss what they can see on the clock face prepared in the previous lesson. Ask learners to share with others what they can see on the clock face.
2. Discuss with the learners the relationship between the hour hand and the minute hand.
3. Using the activity in the learner's book page 84, guide learners to relate the hour hand to the minute hand.
4. Learners to play digital games involving time. The digital device should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 84

## Week 10 Lesson 1

**TIME**

**Reading, signing and Telling Time by the Hour**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to read,sign and tell time by the hour.

**Suggested Learning Resources**

- Clock face
- Digital clock

**Key Inquiry Question**

How do you read, sign and tell time by the hour?

**Learning Activities**

1. Using the clock faces prepared from the previous lessons, guide learners in pairs or in groups to mark, read, sign and tell time by the hour.
2. Ask learners in pairs to draw the clock face in their books, mark time by the hour and read and sign to each other.
3. Using the activity in the learner's book page 85 , guide learners read and sign time by the hour.
4. Learners to play digital games involving time. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 85

## Week 10 Lesson 2

**TIME**

**Reading, signing and Telling Time 'past' the Hour**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to read, sign and tell time "past" the hour.

**Suggested Learning Resources**

- Clock face
- Digital clock

**Key Inquiry Question**

How do we read, sign and tell time "past" the hour?

**Learning Activities**

1. Using the clock faces prepared from the previous lessons, guide learners in pairs or in groups to mark, read,sign and tell time "past" the hour.
2. Ask learners in pairs to draw the clock face in their books, mark time "past" the hour and read,sign to each other.
3. Using the example in the learner's book page 86, guide learners to read,sign and tell time "past" the hour.
4. Learners to play digital games involving time. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 86

## MONEY

**Time - 4 lessons**

**Background Information**

The teaching of money begins with the learners being guided to identify the different currency coins and notes. In earlier grades learners perform shopping activities which lead to differentiating concepts like balance and change. Later learners are expected to be able to relate a given amount of money to goods and services.

This sub strand also includes needs and wants as well as spending and saving which learners need to understand to be able to make meaningful decisions on money issues.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, honesty, responsibility among others. As a non-formal activity learners may assist the school clerk in sorting coins and notes according to their value. The teacher may also discuss how the money concept is linked to Language, Environmental and Religious activities. As a community service activity to support learning, learners assist in counting money offered in religious and non-religious functions.

## Week 10 Lesson 3

### MONEY

**Kenyan Currency Notes**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to identify Kenyan currency notes up to sh. 1000.

**Suggested Learning Resources**

- Kenyan currency notes
- Items with prices tags

**Key Inquiry Question**

How do you identify Kenyan currency notes?

**Learning Activities**

1. Guide learners in pairs or groups to sort out Kenyan currency notes according to their values and features up to sh. 1000.
2. Ask learners in pairs or groups to discuss the features and values of the Kenyan currency notes. Ask learners from different groups to share the features identified in their groups.

3. Using the activity in the learner's book page 87, guide the learners to identify the features and values of the Kenyan currency notes.
4. Learners to play digital games involving money. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 87

## Week 10 Lesson 4

### Counting Money

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to count money in different denominations up to sh. 1000.

**Suggested Learning Resources**

- Kenyan currency notes
- Imitation money

**Key Inquiry Question**

How do we identify Kenyan currency notes?

**Learning Activities**

1. Guide learners in pairs or groups to put together notes of different denominations and state their total value.
2. Ask learners to share the total value of the notes with other groups.
3. Using the activity in the learner's book page 88, guide learners to count money in different denominations up to sh. 1000.
4. Learners to play digital games involving money. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 89

## MONEY

### Shopping Activities Involving Change

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to carry out shopping activities involving change.

**Suggested Learning Resources**

- Kenyan currency notes
- Imitation money
- Price list
- Items with price tags
- Shop corner

**Key Inquiry Question**

What is change in money?

**Learning Activities**

1. Guide learners in pairs or in groups to role-play giving change in the classroom shop.
2. Ask learners to share their experiences of getting change with other groups.
3. Using the example in the learner's book page 90 , guide learners to carry out shopping activities involving change.
4. Learners to play digital games involving money.The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 90

## MONEY

### Shopping Activities Involving Balance

**Specific Lesson Learning Outcome**

By the end of the lesson the learner should be able to carry out shopping activities involving balance.

**Suggested Learning Resources**

- Kenyan currency notes
- Imitation money
- Price list
- Shop corner
- Items with price tags
- Coins

**Key Inquiry Question**

What is balance in money?

**Learning Activities**

1. Guide learners in pairs or in groups to role-play giving balance in the classroom shop.
2. Ask learners to share their experiences with other groups.
3. Using the examples in the learner's book page 91, guide learners to carry out shopping activities involving balance.
4. Learners to play digital games involving money. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 91

**General Learning Outcome**

By the end of this strand, the learners should be able to describe properties of geometrical shapes and spatial relationships in real life experiences.

## POSITION AND DIRECTION

**Time - 2 lessons**

**Background Information**

The learning of geometry starts with the learners modeling straight and curved lines. Position and direction is an important aspect in our day to day life hence the need to consider this in this sub strand. It is expected that the learners will be able to follow instructions on moving straight, turning right or left and even guide people to follow directions to get to a destination.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should involve learners in non-formal activities including arranging seats in straight lines in the classroom. The teacher may also discuss how the position and direction concept is linked to Movement and creative and Environmental activities. As a community service activity to support learning learners could assist in arranging seats in straight lines in community functions.

## POSITION AND DIRECTION

### Turning to the Right

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should able to move along a straight line from a point and turn to the right.

**Suggested Learning Resources**

- School compound
- Flip chart showing directions
- Pictures

**Key Inquiry Question**

What do you do when you get to a road junction?

**Learning Activities**

1. Guide learners in pairs or groups to discuss the direction to take after reaching a road junction. Learners to write possible directions to take at a road junction.
2. The teacher to take learners for an outdoor activity involving turning right. Assist learners to identify their right hands. Discuss safety precautions when performing the activity.
3. Using the picture in the learner's book page 92, discuss with the learners how to turn right from a point in real life situations.
4. Learners to play digital games involving position and direction. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 92.

## POSITION AND DIRECTION

### Turning to the Left

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should able to move along a straight line from a point and turn to the left.

**Learning Resources**

- School compound
- Flip chart showing directions
- Pictures

**Key Inquiry Question**

What do you do when you get to a road junction?

**Learning Activities**

1. Take learners out of the classroom. Guide learners to identify their left hands. Guide the learners to move along a straight line and then turn left.
2. Ask learners in pairs to practice moving along straight lines from a point and then turning left.
3. Using the picture in the learner's book page 93, discuss with the learners how to turn left from a point in real life situations.
4. Learners to play digital games involving position and direction. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 93

## SHAPES

**Time - 3 lessons**

**Background Information**

Learners start interacting with different shapes found at home and also in the environment before they come to school. In school they start learning about shapes through the sorting and grouping activities. Later they are able to identify different shapes and make patterns using them. The concept of making patterns is further developed in this sub strand and learners may pick it up and get involved in making patterns on cloths or belts, a business venture in their free time, later in life.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should involve learners in non-formal activities including making patterns and sticking them on classroom walls for beauty. The teacher may also discuss how patterns are linked to Movement and Creative and Environmental activities. Learners could visit children's homes and beautify their walls with patterns drawn on paper as a way of community service learning.

## Week 11 Lesson 4

**Geometric Shapes**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should able to identify different types of lines and shapes.

**Suggested Learning Resources**

- Pieces of string
- Rectangular, Circular, Triangular, Oval and Square cut outs

(all of different colours and sizes)

**Key Inquiry Question**

What shapes can you identify in your school?

**Learning activities**

1. Guide learners in pairs or in groups to name, sort and group items of different shapes.
2. Ask learners to draw different lines and shapes.
3. Ask the learners to display their work.
4. Using the picture in the learner's book page 94, discuss with the learners the different lines and shapes.
5. Learners to play digital games involving lines and shapes.The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 94.

## Week 11 Lesson 5

### SHAPES

**Patterns**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to make patterns using different shapes.

**Learning Resources**

Rectangular, circular, triangular, oval and square cut outs

**Key Inquiry Question**

What patterns can you identify in your school?

**Learning Activities**

1) Guide learners in pairs to identify and draw different shapes.
2) Ask learners in pairs to make patterns using different shapes.
3) Using the example in the learner's book page 96, guide learners to make patterns using different shapes.
4) Learners to play digital games involving shapes. The digital devices should have signed instructions.

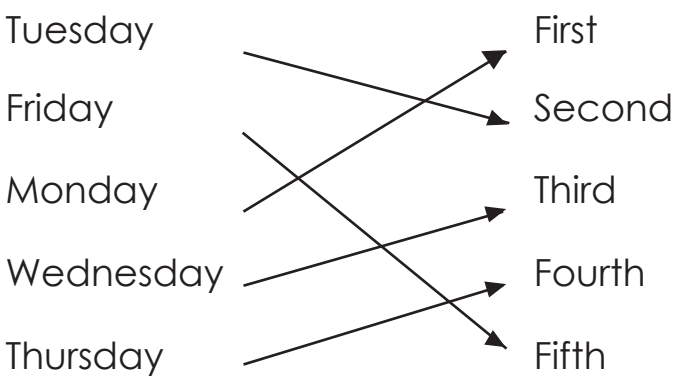
**Work to do**

Learners to work out questions from the learner's book page 96

## ANSWERS FOR TERM 1

### WEEK 1 LESSON: 1

1. **School Day** **Position**

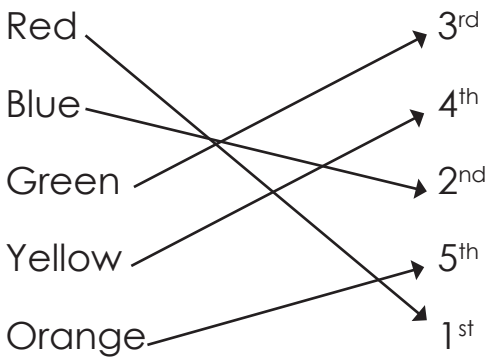



2. **Grade** **Position**

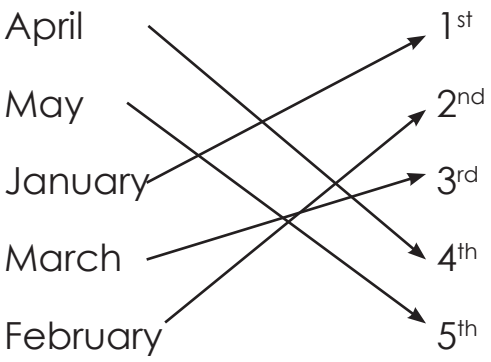
| | |
|---|---|
| 2 | First |
| 3 | Second |
| 4 | Third |
| 5 | Fourth |
| 6 | Fifth |

### WEEK 1 LESSON 2

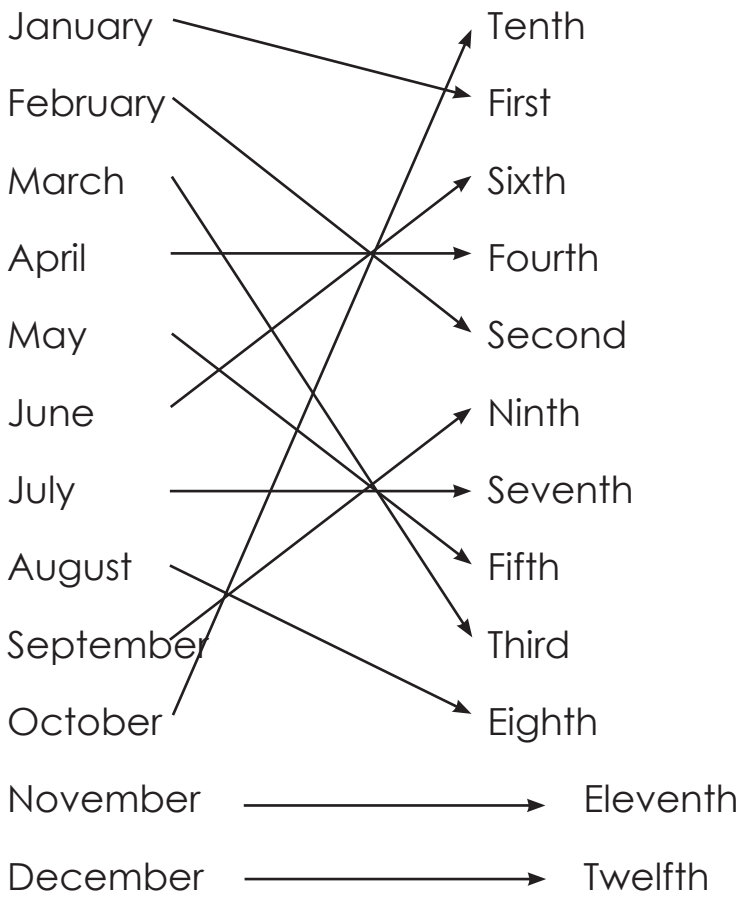
1. **Colour** **position**



2. Month of the year




**WEEK 1 LESSON 3**



## WEEK 1 LESSON 4

1st

3rd

4th

5th

6th

7th

8th

9th

## WEEK 1 LESSON 5

1. 97, 96, 95, 94
2. 267, 266, 265, 264
3. 723, 724, 725, 726
4. 512, 511, 510, 509
5. 428, 427, 426, 425

## WEEK 2 LESSON 1

1. 517, 519
2. 616, 618
3. 319, 317
4. 749, 747
5. 992, 990
6. 106, 108
7. 75, 73
8. 36, 38

## WEEK 2 LESSON 2

| | | |
|---|---|---|
| 1. | **2** tens | **9** ones |
| 2. | **3** tens | **6** ones |
| 3. | **9** tens | **7** ones |
| 4. | **0** tens | **4** ones |
| 5. | **8** tens | **4** ones |
| 6. | **4** Tens | **9** ones |
| 7. | **7** Tens | **5** ones |

## WEEK 2 LESSON 3

**NB:** Reading and Signing lesson

## WEEK 2 LESSON 4

2

9

18

27

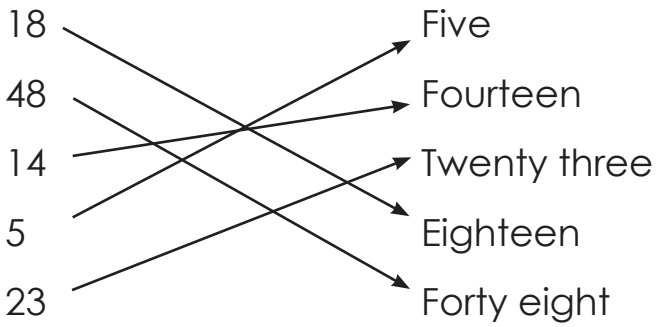
32

44

50

**Number** **Words**

Match

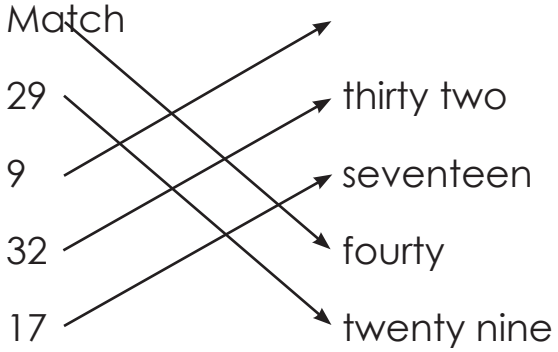



**WEEK 2 LESSON 5**

1. Number Words

| | |
|---|---|
| 33 | thirty three |
| 29 | twenty nine |
| 50 | fifty |
| 44 | forty four |
| 14 | fourteen |
| 26 | twenty six |
| 12 | twelve |

2. Match



## WEEK 3 LESSON 1

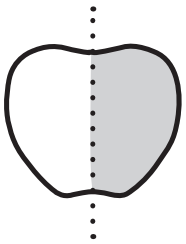
1. **9**
2. **10**
3. **2**
4. **1**
5. **8**
6. **4**
7. **10**

## WEEK 3 LESSON 2

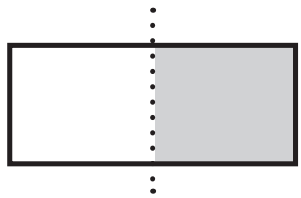
1. 97, 99
2. 84, 85
3. 70, 73
4. 61, 66
5. 38, 40

## WEEK 3 LESSON 3

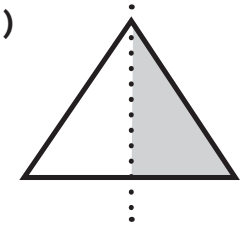
1)



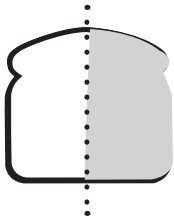
2)



3)

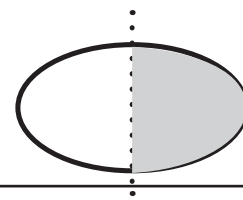


4)



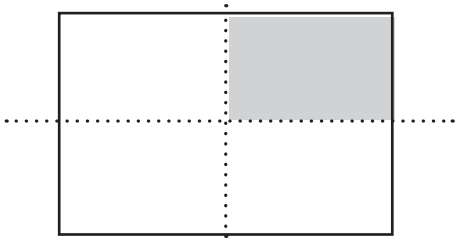
5)

6)

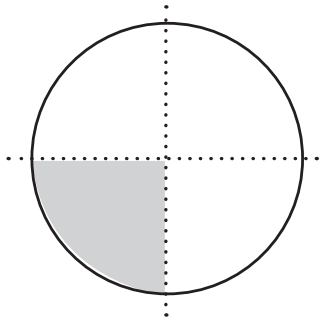


## WEEK 3 LESSON 4

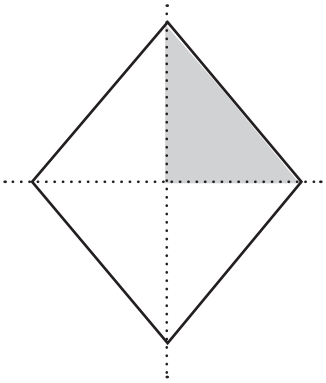
**1.**



**2.**



**3.**



6. 11, 9

## WEEK 3 LESSON 5

1 a

2 b

3 b

## WEEK 4 LESSON 1

1. 1/2
2. 1/2
3. 2
4. 5
5. 4
6. 6
7. 3

8. 5
9. 10

**WEEK 4 LESSON 2**

1. 997
2. 289
3. 677
4. 447
5. 798
6. 907
7. 347
8. 955
9. 345
10. 518

**WEEK 4 LESSON 3**

1. 791
2. 192
3. 552
4. 351
5. 623
6. 820
7. 231
8. 142
9. 882
10. 312

## WEEK 4 LESSON 4

1. 339
2. 438
3. 958
4. 173
5. 868
6. 885
7. 963
8. 769
9. 175
10. 495

## WEEK 4 LESSON 5

1. 391
2. 492
3. 291
4. 891
5. 709
6. 839
7. 298
8. 568
9. 918
10. 228

## WEEK 5 LESSON 1

1. 10
2. 8
3. 9
4. 9
5. 6
6. 10
7. 9
8. 9
9. 8
10. 10

## WEEK 5 LESSON 2

1. 459
2. 495
3. 498
4. 492
5. 398
6. 496
7. 358
8. 485
9. 499
10. 494

## WEEK 5 LESSON 3

1. 474
2. 491
3. 492
4. 483
5. 303
6. 417
7. 483
8. 439
9. 593 party chairs
10. 315 kg

## WEEK 5 LESSON 4

1. 200, 225
2. 335, 340
3. 475, 490
4. 400, 450
5. 375, 450

## WEEK 5 LESSON 5

1. 22
2. 75
3. 41
4. 63
5. 13
6. 80
7 91
8 43
9. 20 pieces of soap
10. 81 chicken

## WEEK 6 LESSON 1

1. 11
2. 17
3. 3
4. 10
5. 24

6. 22
7. 32
8. 15 girls
9. 45 books
10. 22 bags

## WEEK 6 LESSON 2

1. 78
2. 19
3. 9
4. 28
5. 56
6. 69
7. 82
8. 39
9. 7 rabbits
10. 25 eggs

**WEEK 6 LESSON 3**

1. 25
2. 6
3. 29
4. 8
5. 17
6. 46
7. 16
8. 33 mangoes
9. 29 phones
10. 66 bananas

**WEEK 6 LESSON 4**

1. 20
2. 10
3. 0
4. 10
5. 20
6. 30
7. 20
8. 20
9. 60 plates
10. 10 shirts

**WEEK 6 LESSON 5**

1. 431
2. 573
3. 521
4. 713
5. 513
6. 714
7. sh 832
8. 521 long trouser
9. 125 litres
10. 253 learners

## WEEK 7 LESSON: 1

1. 4, 2
2. 11, 8
3. 30, 20
4. 55, 50
5. 30,10

## WEEK 7 LESSON 2

1. 4 + 4
2. 2 X 5
3. 5 + 5 + 5 3 X 5
4. 6 + 6 + 6 3 X 6
5. 2 X 7
6. 3 X 7 = 21
7. 2 X 8 = 16

## WEEK 7 LESSON 3

1. 5
2. 8
3. 18
4. 56
5. 90
6. 25
7. 36
8. 35
9. 32
10. 40

## WEEK 7 LESSON 4

1. 20
2. 30
3. 40
4. 50
5. 100
6. 60
7. 70
8. 80
9. 90
10. 10

## WEEK 7 LESSON 5

1. 2
2. 3
3. 4
4. 2
5. 3
6. 3
7. 4
8. 5

## WEEK 8 LESSON 1

a. 4
b. 5
c. 5
d. 5
e. 5
f. 4

2 a $10 \div 2 = 5$

a. $12 \div 4 = 3$
b. $15 \div 3 = 5$
c. $14 \div 7 = 2$
d. $6 \div 2 = 3$

## WEEK 8 LESSON 2

1. 4 X 5
2. $12 \div 3 = 4$, $4 \times 3 = 12$
3. $12 \div 3 = 4$,
4. $25 \div 5 = 5$,
5. $10 \div 2 = 5$,
6. $15 \div 3 = 5$,

7. 8 ÷ 2 = 4,
8. 20 ÷ 5 = 4,
9. 5 ÷ 5 = 1,
10. 8 ÷ 4 = 2,

**WEEK 8 LESSON: 3**

Ensure that learners measure the lengths accurately. Guide this accordingly

**WEEK 8 LESSON 4**

Let learners to estimate the distances. Guide them accordingly to measure accurately. Guide the learners to relate the estimated and the actual distances. Mark accurate work.

**WEEK 8 LESSON 5**

Guide learners to measure and record the masses accurately.

**WEEK 9 LESSON 1**

Give the learners guidance as they estimate and measure mass.

**WEEK 9 LESSON 2**

14L, 5L, 8L.

## WEEK 9 LESSON 3

Guide learners accordingly as they estimate, measure and make comparisons to establish accuracy.

## WEEK 9 LESSON 4

## WEEK 9 LESSON 5

**1.**

**2.**

**3.**

**4.**

## WEEK 10 LESSON 1

**1.** a) 9 o'clock

b) 10 o,clock

c) 7 o,clock

d) 4 o,clock

2. a)

b)

c)

d)

## WEEK 10 LESSON 2

1. a quarter past 6
2. a quarter past 4
3. a half past 10
4. a half past 3
5. a half past 2
6. 10 minutes past 4
7. 20 minutes past 2
8. half past 6

## WEEK 10 LESSON 3

- A man
- people
- elephants
- house
- A Tower
- A court of arms
- A statue etc

## WEEK 10 LESSON 4

1. sh. 550
2. sh 600
3. sh 700
4. sh 300

## WEEK 10 LESSON 5

1. 2
2. 2
3. 5
4. 2

## WEEK 11 LESSON 1

1. sh 400
2. sh 50
3. sh 75
4. sh 200
5. sh 70

## WEEK 11 LESSON 2

1. Straight
2. Right
3. Right
4. Straight
5. Right

## WEEK 11 LESSON 3

1. Left
2. Left
3. Left
4. Left
5. Straight

## WEEK 11 LESSON 4

A. Triangle
B. Square
C. Rectangle
D. Circle
E. Triangle

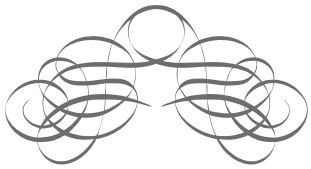
**2.** a) Curved b) Straight c) Curved

d) Curved e) Straight f) Curved

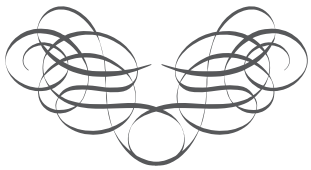
**3.** a) Straight
b) Straight
c) Curved

## WEEK 11 LESSON 5

1. 
2. 
3. 
4. 



# TERM TWO



**General Learning Outcome**

By the end of this strand, learners should demonstrate mastery of number concepts by working out problems in day to day life.

## NUMBER CONCEPT

**Time - 2 lessons**

**Background Information**

Learners have already learnt how to sort, match and order items either in increasing or decreasing order. The learners at this level are also able to count numbers in symbols up to 100. In this sub strand, learners will be expected to apply previous knowledge acquired in identifying positions from 1 – 20. Learners will all be expected to play digital games using their LDD or any other IT devices. For learners with hearing impairment the devices should have signed instructions.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism, responsibility among others. The teacher should also involve learners in non-formal activities including counting different types of items in their classroom. The teacher may also discuss how the number concept is linked to language, and Hygiene and Nutrition activities. The teacher may organize visits to homes of the elderly for learners to listen to stories of how they used to count their possessions as a way of promoting learning outside the school.

## NUMBER CONCEPT

### Position Names

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to use ordinal number names to identify position from 11 to 15.

**Suggested Learning Resources**

- Flash cards.
- Felt pens.
- Picture cards
- Number chart

**Key Inquiry Question**

How do you identify positions?

**Learning Activities**

1. Prepare 15 number cards with the ordinal number names and arrange them on the Teacher's desk randomly, facing down.
2. Ask learners to pick a card from the teacher's desk one at a time until they are finished. Ask the learners to say the positions of the learners picking the cards e.g. the first learner picked…
3. Draw a table and ask learners to fill in their names against the position number they have picked from the first, second, third up to fifteenth.
4. Guide learners to read and sign the ordinal number names first, second, third up to fifteenth while emphasizing positions eleventh, twelfth, thirteenth, fourteenth and fifteenth.
5. Using the example in the learners book page 99, guide the learners to use ordinal number names to identify the positions.
6. Learners to play digital games involving ordinal numbers.The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the Learner's book page 101

## NUMBER CONCEPT

### Positions 1st to 15th

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to use ordinal number symbols to identify position from 11th to 15th.

**Suggested Learning Resources**

- Flash cards.
- Felt pens.
- Picture cards.
- Number chart

**Key Inquiry Question**

How do you identify positions?

**Learning Activities**

1. Prepare 15 picture cards showing different types of cutlery found at home. Also prepare 15 number cards with ordinal number names on one side and corresponding number symbols on the other. Guide learners in pairs or in groups to arrange the 15 picture cards from the right of their desks.
2. Learners to place number cards with ordinal number names first, second, third up to fifteenth on the picture cards.
3. Guide learners to turn over the number cards with ordinal number symbols 1st , 2nd, 3rd up to 15th and read,sign the symbols while placing emphasis on 11th, 12th, 13th, 14th and 15th.
4. Using the activity in the learners book page 102, guide the learners on how to use ordinal number symbols 1st, 2nd, 3rd up to 15th.
5. Learners to play digital games involving ordinal numbers. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the Learner's book page 102

## WHOLE NUMBERS

**Time - 8 lessons**

**Background Information**

In grade two learners covered the counting of numbers up to 100. They also identified place value of ones, tens and hundreds as well as reading, signing and writing numbers in words.

In this sub strand these concepts are developed further. Learners will count up to 1000 and identify place value up to thousands. Learners will also make patterns and it is hoped that they will appreciate number patterns as they skip on the number line. The teacher should guide learners in playing digital games related to the sub strand in school and outside school. For learners with hearing impairment, the digital devices should have signed instructions.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism, and responsibility among others. The teacher should also involve learners in non-formal activities including planting flowers following a pattern in the school compound. The teacher may also discuss how the whole number concept is linked to Language, Environmental, Movement and Creative activities. At home, learners may assist in arranging chairs and tables in rows and columns in community functions as a way of promoting learning outside the school.

## WHOLE NUMBERS

### Counting in Fives

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to count in fives forward and backwards from 1 to 1000.

**Suggested Learning Resources**

- Number card
- Number line
- Number chart
- Counters

**Key Inquiry Question**

How do you count numbers?

**Learning Activities**

1. Guide learners in pairs or in groups to count objects in fives both forward and backwards.
2. Learners in groups to place number cards on the groups to show number of objects in the group.
3. Using the activity in the learners book page 101, guide the learners to count in fives forward and backwards from 1 to1000.
4. Learners to play digital games involving counting. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the Learner's book page 103

## WHOLE NUMBERS

### Place Value

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to identify the place value up to tens.

**Suggested Learning Resources**

- Bundles of sticks and loose ones
- Abacus
- Place value tins
- Place value chart

**Key Inquiry Question**

How do you identify place value?

**Learning activities**

1. Guide learners in pairs or in groups to represent various numbers using bundles of sticks.
2. Ask learners in pairs or groups to identify ones and tens from the bundles of sticks and loose ones.
3. Guide learners in pairs or groups to represent various numbers using place value apparatus and identify ones and tens.
4. Using the example in the learners book page 104, guide the learners to identify place value up to tens.
5. Learners to play digital games involving place value. The digital devices should have signed instructions

**Work to do**

Learners work out questions from learner's book page 104.

## WHOLE NUMBERS

### Place Value

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to identify place value up to hundreds.

**Suggested Learning Resources**

- Bundles of sticks
- Abacus
- Place value chart

**Key Inquiry Question**

How do you identify place value?

**Learning Activities**

1. Guide learners in pairs or in groups to represent various numbers using bundles of sticks and loose ones.
2. Learners in pairs or in groups to identify ones, tens and hundreds from the bundles of sticks and loose ones.
3. Guide learners in pairs or groups to represent various numbers using place value apparatus and identify ones tens and hundreds.
4. Using the example in the learners book page 106, guide the learners in identifying place value of ones, tens and hundreds.
5. Learners to play digital games involving place value. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the Learner's book page 106

## WHOLE NUMBERS

### Reading and signing Numbers

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to read and sign numbers in symbols 1 to 100.

**Suggested Learning Resources**

- Flash cards
- Number charts
- Counters

**Key Inquiry Question**

What do we use to represent groups of objects?

**Learning Activities**

1. Guide learners in pairs or in groups to read and sign numbers in turns using the number charts.
2. Ask learners in pairs or groups to read and sign numbers from number cards or flash cards.
3. Using the example in the learners book page 108, guide the learners in reading and signing whole numbers 1 to 100.
4. Learners to play digital games involving reading and signing whole numbers. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the Learner's book page 108

## WHOLE NUMBERS

### Reading , signing and Fingerspelling Numbers in Words

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to read ,sign and fingerspell numbers 1 to 100 in words.

**Suggested Learning Resources**

- Number charts with number symbols and number names.
- Flash cards with number symbols
- Flash cards with number names

**Key Inquiry Question**

How do we read numbers in words?

**Learning Activities**

1. Guide learners in pairs or groups to read, sign and fingerspell numbers 1to100 in words.
2. Ask learners in pairs or groups to match number words with number symbols (1to100).
3. Using the example in the learners book page 109, guide the learners in reading,signing and fingerspelling numbers 1 to 100 in words.
4. Learners to play digital games involving reading, signing and fingerspelling numbers in words.The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the Learner's book page 109

## Week 2 Lesson 3

### WHOLE NUMBERS

**Writing Numbers in Words**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to write numbers 1 to 100 in words.

**Suggested Learning Resources**

- Number charts with number symbols and number names
- Flash cards

**Key Inquiry Question**

How can numbers in symbols be written in words?

**Learning Activities**

1. Guide learners in pairs or in groups to write numbers 1to100 in words.
2. In pairs or groups, a learner displays flash cards with number symbols while others write the number name.
3. Using the example in the learners book page 110, guide learners in writing whole numbers 1to100 in words.
4. Learners to play digital games involving writing numbers in words. The digital devices should have signed instructions

**Learner's work**

Learners to work out questions from the Learner's book page 110

## Week 2 Lesson 4

### WHOLE NUMBERS

**Number Patterns**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to work out missing numbers in number patterns involving numbers 1 to 500

**Suggested Learning Resources**

- Number charts
- Number cards
- Number line
- Counters

**Key Inquiry Question**

How do we identify missing numbers in number patterns?

**Learning Activities**

1. Guide learners in pairs or groups to arrange numbers using number cards in an increasing order 1 to 500 (from any point to a maximum of 10 numbers)
2. Guide learners to create a pattern by removing a card(s) and skipping one or more to the next. Learners to write the resulting pattern from activity two (2) and share with other groups.
3. Guide learners in pairs or in groups to arrange numbers using number cards in a decreasing order 500 to1 (from any point to a maximum of 10 numbers)
4. Guide learners to create a pattern by removing a card(s) and skipping one or more to the next. Learners to write the resulting pattern and share with other groups.
5. Using the example in the learners book page 111, guide the learners in identifying the missing numbers in a number pattern.
6. Learners to play digital games involving number patterns. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from learners' book page 111.

## WHOLE NUMBERS

### Number Patterns

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to work out missing numbers in number patterns involving numbers 1 to 1000.

**Suggested Learning Resources**

- Number charts
- Number cards
- Number lines
- Counters

**Key Inquiry Question**

How do we identify missing numbers in a pattern?

**Learning Activities**

1. Guide learners in pairs or in groups to arrange numbers using number cards in an increasing order 1to1000 (from any point to maximum of 10 numbers).
2. Guide learners to create a pattern by removing a card(s) and skipping one or more to the next. Learners to write the resulting pattern and share with other groups.
3. Guide learners in pairs or in groups to arrange numbers using number cards in a decreasing order 1000 to1 (from any point to maximum of 10 numbers).
4. Guide learners to create a pattern by removing a card(s) and skipping one or more to the next. Learners to write the resulting pattern and share with other groups.
5. Using examples in the learners book page 112, guide learners to work out missing numbers in a number pattern involving numbers 1 to 1000.

6. Learners to play digital games involving number patterns. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 110.

## FRACTIONS

**Time - 4 lessons**

**Background Information**

In this sub strand learners will be introduced to a fraction as part of a whole and as part of a group. Learners may, however, have experiences from home where they have shared whole items like fruits, sweets or even bread.

It is from this background that the teacher can introduce a half (½), a quarter (¼) and an eighth (⅛) as part of a whole using items like an orange, piece of stick, loaf of bread, circular and rectangular cut-outs. In introducing fractions as part of a group the teacher may use items like pebbles, marbles, sticks, bottle tops or any other safe type of counters. Knowledge of division, sorting and grouping acquired in earlier grades will be useful in this sub strand.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of some of the basic education curriculum core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should also involve learners in non-formal activities including sharing edible food items in halves and quarters in school. The teacher may also discuss how the concept on fractions is linked to Language and Hygiene and nutrition activities. Learners may assist in sharing items in halves and quarters in community functions as a way of promoting learning outside the school

## FRACTIONS

### Eighth as Part of a Whole

**Specific Lesson Learning Outcomes**

By the end of the lesson the learner should be able to identify an eighth as part of a whole.

**Suggested Learning Resources**

- Manila Cutouts
- Pairs of scissors
- Real objects

**Key Inquiry Question**

How do we represent an eighth of a whole?

**Learning Activities**

1. Guide learners in pairs or in groups to cut rectangular cutouts. Discuss the safety measures when handling sharp objects.
2. Learners in pairs or groups to discuss how to get 1/8 of a cutout.
3. Guide learners to fold the rectangular cutouts into 8 equal parts and identify one part as a ⅛ of the whole.
4. Using the example in the learner's book page 113, guide learners to identify ⅛ as part of a whole.
5. Learners to play digital games involving fractions. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the Learner's book page 113.

# FRACTIONS

## Comparing a Quarter and an Eighth

### Specific Lesson Learning Outcome

By the end of the lesson the learners should be able to compare a quarter and an eighth as part of a whole.

### Suggested Learning Resources

- Manila cutouts,
- Pair of scissors.
- Real objects

### Key Inquiry Question

How do we compare ¼ and ⅛ of a whole?

### Learning activities

1. Guide learners in pairs and in groups to cut circular and rectangular cut outs. Discuss on safety measures when handling the sharp objects.
2. Learners to discuss how to get a quarter and an eighth of a whole using the cut-outs prepared in activity one (1).
3. Guide learners to fold circular and rectangular cutouts into 4 and 8 equal parts and to identify a quarter and an eighth of a whole.
4. Using the examples in the learner's book page 114, guide learners to identify and compare a quarter and an eighth as part of a whole.
5. Learners to play digital games involving fractions. The digital devices should have signed instructions

### Work to do

Learners to work out questions from the learner's book page 114 .

## FRACTIONS

### Quarter as Part of a Group

**Specific Lesson Learning Outcome**

By the end of the lesson the learner should be able to identify a quarter as part of a group.

**Suggested Learning Resources**

- Bottle tops,
- Sticks
- Other counters

**Key Inquiry Question**

How do we identify a quarter of a group?

**Learning activities**

1. Demonstrate the sharing of bottle tops into four equal groups. Guide learners to identify one group as a quarter of the whole group.
2. Group learners in fours. Give each group a number of counters and let them share the bottle tops equally.
3. Guide the learners to identify that one group of the four groups represents a quarter of the group.
4. Using the example on the learner's book page 115, guide learners to identify quarter as part of a group.
5. Learners to play digital games involving fractions. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 115.

## FRACTIONS

### Eighth as Part of a Group

**Specific Lesson Learning Outcome**

By the end of the lesson the learner should be able to identify an eighth as part of a group.

**Suggested Learning Resources**

- Bottle tops,
- Sticks.
- Other counters

**Key Inquiry Question**

How do we represent an eighth of a group?

**Learning activities**

1. Demonstrate the sharing of bottle tops into eight equal groups. Guide learners to identify one group as an eighth of the whole group.
2. Group learners in eights. Give each group a number of counters and let them share the bottle tops equally.
3. Guide the learners to identify that one group of the eight groups represents an eighth of the group.
4. Using the example on the learner's book page 117, guide learners to identify an eighth as part of a group.
5. Learners to play digital games involving fractions. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 117

## ADDITION

**Time - 9 lessons**

**Background Information**

Addition of up to two 2-digit numbers with and without regrouping has already been covered in the previous grades. Learners have also learnt how to work out missing numbers in patterns involving addition up to 100. This sub strand will build on this knowledge to extend the addition of whole numbers. Learners will therefore be involved in the addition of up to two 3-digit numbers with single regrouping in ones or tens. The concept of number patterns involving addition is also extended to 1000. The teacher can search for digital games that involve addition and guide the learners in playing them.The digital devices should have signed instructions for learnrers with hearing impairment.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should also involve learners in non-formal activities including planting flowers in patterns in school. The teacher may also discuss how the addition concept is linked to Languages and Hygiene and Nutrition activities. The teacher may organize visits to older citizen's homes for learners to assist them in working out the total number of different items in their homes as a way of extending learning outside the school.

## Week 3 Lesson 5

## ADDITION

**Adding a 3- digit number to 2- digit number**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add a 3- digit number to 2- digit number without regrouping vertically with sum (total)

not exceeding 1000.

**Suggested Learning Resources**

- Place value tins
- Place value charts
- Abacus
- Counters

**Key Inquiry Question**

How do we add a 3-digit number to a 2-digit number?

**Learning Activities**

1. Guide learners in groups to use the place value apparatus in adding a 3 digit number to a 1- digit number without regrouping. Discuss the safety precautions when handling the resource materials.
2. Guide learners in groups to discuss how to add a 3- digit number to a 2- digit number without regrouping vertically with sum (total) not exceeding 1000.
3. Using examples in the learner's book page 118, guide the learners to add a 3- digit number to a 2- digit number without regrouping.
4. Learners to play digital games involving addition. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the Learner's book page 118.

## ADDITION

### Adding a 3- digit number to 2- digit number

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add a 3- digit number to 2- digit number without regrouping horizontally with sum (total) not exceeding 1000

**Suggested Learning Resources**

- Place value tins
- Place value chart
- Abacus
- Counters

**Key Inquiry Question**

How do we add a 3- digit number to a 2- digit number?

**Learning Activities**

1. Guide learners in groups to use the place value apparatus in adding a 3 digit number to a 2- digit number without regrouping. Discuss the safety precautions when handling the resource materials.
2. Guide learners in groups to discuss how to add a 3- digit number to a 2- digit number without regrouping horizontally with sum (total) not exceeding 1000.
3. Using examples in the learner's book page 120, guide the learners to add a 3- digit number to a 2- digit number horizontally without regrouping.
4. Learners to play digital games involving addition. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the Learner's book page 120.

## ADDITION

### Adding a 3- Digit Number to a 2- Digit Number

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add a 3- digit number to a 2- digit number with regrouping from ones vertically and horizontally with sum (total) not exceeding 1000.

**Suggested Learning Resources**

- Place value tins
- Place value charts
- Abacus.
- Counters

**Key Inquiry Question**

How do we add a 3-digit number to a 2-digit number involving regrouping?

**Learning Activities**

1. Guide learners in groups to use the place value apparatus in adding a 3 digit number to a 2- digit number with regrouping by separating from ones with sum (total) not exceeding 1000. Discuss the safety precautions when handling the resource materials.
2. Guide learners in groups to discuss how to add a 3- digit number to a 2- digit number with regrouping by separating from ones vertically and horizontally with sum (total) not exceeding 1000.
3. Using examples in the learner's book page 121, guide learners to add a 3- digit number to a 2- digit number vertically and horizontally with regrouping by separating with sum (total) not exceeding 1000.
4. Learners to play digital games involving addition. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the Learner's book page 122.

## Week 4 Lesson 3

## ADDITION

### Adding a 3- digit number to 2- digit number

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add a 3- digit number to a 2- digit number with regrouping from tens vertically with sum (not) exceeding 1000.

**Suggested Learning Resources**

- Place value tins
- Place value charts
- Abacus
- Counters

**Key Inquiry Question**

How do you add numbers involving regrouping?

**Learning Activities**

1. Guide learners in groups to use the place value apparatus in adding a 3 digit number to a 2- digit number with regrouping by separating from tens vertically with sum (total) not exceeding 1000. Discuss the safety precautions when handling the resource materials.
2. Guide learners in groups to discuss how to add a 3- digit number to a 2- digit number with regrouping by separating from tens vertically with sum (total) not exceeding 1000.
3. Using examples in the learner's book page 123, guide learners to add a 3- digit number to a 2- digit number with regrouping by separating from tens vertically with sum (total) not exceeding 1000.

4. Learners to play digital games involving addition. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the Learner's book page 124.

## Week 4 Lesson 4

### ADDITION

**Adding 3-Single Digit Numbers**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add 3-single digit numbers with sum (total) not exceeding 20.

**Suggested Learning Resources**

- Bottle tops
- Sticks
- Grains
- Other counters

**Key Inquiry Question**

How do we add 3 single digit numbers?

**Learning Activities**

1) Guide learners in pairs or in groups to discuss how to add 3-single digit numbers with sum (total) not exceeding 20 using concrete objects. Discuss the safety precautions when handling the resources and materials.
2) Ask learners in pairs to discuss how to add 3- single digit numbers.
3) Using examples in the learner's book page 125, guide learners to add 3-single digit numbers with sum (total) not exceeding 20.
4) Learners to play digital games involving addition. The digital

devices should have signed instructions

**Work to do**

Learners to work out questions from the Learner's book page 125.

## Week 4 Lesson 5

### ADDITION

### Adding two 3- digit numbers

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add two 3- digit numbers vertically and horizontally without regrouping with sum (total) not exceeding 1000.

**Suggested Learning Resources**

- Place value tins
- Place value charts
- Abacus
- Counters

**Key Inquiry Question**

How do we add two 3-digit numbers?

**Learning Activities**

1) Guide learners in pairs or groups to use place value apparatus to add two 3- digit numbers without regrouping with sum (total) not exceeding 1000. Discuss the safety precautions when handling the resource materials.
2) Guide learners in pairs or groups to discuss how to add two 3-digit numbers vertically and horizontally without regrouping with sum (total) not exceeding 1000.
3) Using examples in the learner's book page 126, guide learners to add two 3- digit numbers vertically and horizontally without regrouping with sum (total) not exceeding 1000.

4) Learners to play digital games involving addition. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the Learner's book page 127.

## Week 5 Lesson 1

### ADDITION

**Adding two 3- digit numbers**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add two 3- digit numbers with regrouping from ones vertically and horizontally with sum (total) not exceeding 1000.

**Suggested Learning Resources**

- Place value tins
- Place value charts
- Abacus
- Counters

**Key Inquiry Question**

How do we add two 3-digit numbers with regrouping?

**Learning Activities**

1. Guide learners in pairs or groups to use place value apparatus to add two 3- digit numbers with regrouping by separating from ones with sum (total) not exceeding 1000. Discuss the safety precautions when handling the resources and materials.
2. Learners in pairs to discuss how to add two 3 digit numbers with regrouping by separating from ones vertically and horizontally with sum (total)not exceeding 1000.

3. Using examples in the learner's book page 128, guide learners to add two 3- digit numbers vertically and horizontally with regrouping by separating from ones with sum (total) not exceeding 1000.
4. Learners to play digital games involving addition. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the Learner's book page 129.

## Week 5 Lesson 2

### ADDITION

**Adding two 3- digit numbers**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add two 3- digit numbers with regrouping from tens vertically and horizontally with sum (total) not exceeding 1000.

**Suggested Learning Resources**

- Place value tins
- Place value charts
- Abacus
- Counters

**Key Inquiry Question**

How do we add numbers with regrouping?

**Learning Activities**

1. Guide learners in pairs or groups to use place value apparatus to add two 3- digit numbers with regrouping by separating from tens with sum (total) not exceeding 1000. Discuss the safety precautions when handling the resources and materials.
2. Learners in pairs to discuss how to add two 3 digit numbers with

regrouping by separating from tens vertically and horizontally with sum (total) not exceeding 1000.

3. Using examples in the learner's book page 130, guide learners to add two 3- digit numbers vertically and horizontally with regrouping by separating from tens with sum (total) not exceeding 1000.
4. Learners to play digital games involving addition. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the Learner's book page 131.

## Week 5 Lesson 3

### ADDITION

**Number patterns**

**Specific Lesson Learning Outcome**

By the end of the lesson the learner should be able to work out missing numbers in number patterns up to 1000 involving addition.

**Suggested Learning Resources**

- Number Boards/Number grids
- Number lines
- Hundred charts
- Number cards

**Key Inquiry Question**

How do we work out missing numbers in number patterns?

**Learning Activities**

1. Guide learners in pairs or in groups to use hundreds chart or number charts/number boards to form number patterns Discuss the importance of social cohesion as learners work in groups.

2. Discuss with learners how to work out missing numbers in number patterns up to 1000 involving addition.
3. Using examples in the learner's book page 132, guide learners to work out missing numbers in number patterns up to 1000 involving addition.
4. Learners to play digital games involving addition. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the Learner's book page 133

## SUBTRACTION

**Time - 8 lessons**

**Background Information**

Subtraction was introduced in earlier grades as taking away. In grade two, subtraction of up to 2-digit numbers without regrouping was covered. The relationship between addition and subtraction as well as number pattern involving subtraction is also covered in grade two. It is on this pre-requisite that the concept of subtraction of up to 3-digit numbers is developed. Missing numbers in patterns involving subtraction of up to 1000 will also be taught under this sub strand.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility, among others. The teacher should also involve learners in non-formal activities including collecting litter in the school compound. The teacher may also discuss how the subtraction concept is linked to Languages and Environmental activities. Learners may participate in cleaning environmental activities organized by community members as a way of promoting learning outside the school.

## SUBTRACTION

### Subtracting two 2-digit numbers

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to subtract two 2-digit numbers vertically and horizontally without regrouping.

**Suggested Learning Resources**

- Place value charts
- Abacus
- Place value tins
- Pocket boards
- Hundred charts
- Counters

**Key Inquiry Question**

How do we subtract two 2-digit numbers?

**Learning Activities**

1. Guide learners in pairs or in groups to use place value apparatus in subtracting two 2-digit numbers without regrouping. Discuss the safety precautions when handling resources and materials.
2. Learners in pairs to discuss and come up with different ways of subtracting two 2-digit numbers without regrouping
3. Using examples in the Learner's book page 134 guide learners to subtract two 2-digit numbers without regrouping.
4. Learners to play digital games involving subtraction. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the Learner's book page 134.

## SUBTRACTION

### Subtracting a single digit number from a 3-digit number

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to subtract a single digit number from a 3-digit number without regrouping.

**Suggested Learning Resources**

- Place value charts
- Abacus
- Place value tins
- Pocket boards
- Hundred charts
- Counters

**Key Inquiry Question**

How do we subtract a single digit number from a 3-digit number?

**Learning Activities**

1. Guide learners in pairs or in groups to use place value apparatus in subtracting a 1-digit number from a 3-digit number without regrouping. Discuss the safety precautions when handling resources and materials.
2. Learners in pairs to discuss and come up with different ways of subtracting a 1-digit number from a 3-digit number without regrouping.
3. Using examples in the Learner's book page 136 guide learners to subtract a 1- digit number from a 3-digit number without regrouping.
4. Learners to play digital games involving subtraction. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the Learner's book page 136.

## SUBTRACTION

### Subtracting two 2-digit numbers

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to subtract two 2-digit numbers with regrouping.

**Suggested Learning Resources**

- Place value chart
- Abacus
- Place value tins
- Pocket boards
- Hundreds charts
- Counters

**Key Inquiry Question**

How do we subtract two 2-digit numbers with regrouping?

**Learning Activities**

1. Guide learners in pairs or in groups to use place value apparatus in subtracting two 2-digit numbers with regrouping by breaking. Discuss the safety precautions when handling resources and materials.
2. Learners in pairs to discuss and come up with different ways of subtracting two 2-digit numbers with regrouping by breaking.
3. Using examples in the Learner's book page 138, guide learners to subtract two 2-digit numbers with regrouping by breaking.
4. Learners to play digital games involving subtraction. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the Learner's book page 139.

## SUBTRACTION

### Subtracting a 1-digit number from a 3-digit number

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to subtract a 1-digit number from a 3-digit number with regrouping.

**Suggested Learning Resources**

- Place value charts
- Abacus
- Place value tins
- Pocket boards
- Hundreds charts
- Counters

**Key Inquiry Question**

How do we subtract a 1-digit number from a 3-digit number with regrouping?

**Learning Activities**

1. Guide learners in pairs or in groups to use place value apparatus in subtracting a 1-digit number from a 3-digit number with regrouping by breaking. Discuss the safety precautions when handling resources and materials.
2. Learners in pairs to discuss and come up with different ways of subtracting a 1-digit number from a 3-digit number with regrouping by breaking.
3. Using examples in the Learner's book page 140, guide learners to subtract a 1-digit number from a 3-digit number with regrouping by breaking.
4. Learners to play digital games involving subtraction. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 141.

## Week 6 Lesson 3

### SUBTRACTION

**Subtracting two 3-digit numbers**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to subtract two 3-digit numbers without regrouping.

**Suggested Learning Resources**

- Place value charts
- Abacus
- Place value tins
- Pocket boards
- Hundreds charts
- Counters

**Key Inquiry Question**

How do we subtract two 3-digit numbers without regrouping?

**Learning Activities**

1. Guide learners in pairs or in groups to use place value apparatus in subtracting two 3-digit numbers without regrouping. Discuss the safety precautions when handling resources and materials.
2. Learners in pairs to discuss and come up with different ways of subtracting two 3-digit numbers without regrouping
3. Using examples in the Learner's book page 142, guide learners to subtract two 3-digit numbers without regrouping.
4. Learners to play digital games involving subtraction. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 143

## Week 6 Lesson 4

## SUBTRACTION

### Subtracting a 2-digit number from a 3-digit number

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to subtract a 2-digit number from a 3-digit number with regrouping

**Suggested Learning Resources**

- Place value charts
- Abacus
- Place value tins
- Pocket boards
- Hundreds charts
- Counters

**Key Inquiry Question**

How do we subtract numbers with regrouping?

**Learning Activities**

1. Guide learners in pairs or in groups to use place value apparatus in subtracting a 2-digit number from a 3-digit number with regrouping by breaking. Discuss safety precautions when handling resources and materials.
2. Learners in pairs to discuss and come up with different ways of subtracting a 2-digit number from a 3-digit number with regrouping by breaking.
3. Using examples in the Learner's book page 144, guide learners to subtract a 2-digit number from a 3-digit number with regrouping by breaking.

4. Learners to play digital games involving subtraction. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 145

## Week 6 Lesson 5

### SUBTRACTION

**Subtracting multiples of 10**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to subtract multiples of 10 up to 1000 without regrouping.

**Suggested Learning Resources**

- Place value charts
- Abacus
- Place value tins
- Pocket boards
- Hundreds charts
- Counters
- Number line

**Key Inquiry Question**

How do we subtract multiples of 10?

**Learning Activities**

1. Guide learners in pairs or in groups to use place value apparatus in subtracting multiples of 10 up to 1000 without regrouping. Discuss safety precautions when handling resources and materials.
2. Learners in pairs to discuss and come up with different ways of subtracting multiples of 10 up to 1000 without regrouping.
3. Using examples in the Learner's book page 146, guide learners to

subtract multiples of 10 up to 1000 without regrouping.

4. Learners to play digital games involving subtraction. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 147

## SUBTRACTION

### Number patterns

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to work out missing numbers in number patterns up to 1000 involving subtraction.

**Suggested Learning Resources**

- Number Boards/Number grids
- Number-line
- Hundreds charts
- Number cards

**Key Inquiry Question**

How do we work out missing numbers in number patterns?

**Learning Activities**

1. Guide learners in pairs or in groups to use hundreds chart or number charts/number boards/number cards to form number patterns Discuss the importance of social cohesion as learners work in groups.
2. Discuss with learners how to work out missing numbers in number patterns up to 1000 involving subtraction.
3. Using examples in the learner's book page 148, guide learners to work out missing numbers in number patterns up to 1000 involving subtraction.
4. Learners to play digital games involving number patterns. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 149

## MULTIPLICATION

**Time - 4 lessons**

**Background Information**

Multiplication is introduced in grade two as repeated addition. In the modeling of these activities, the learners form groups with equal number of objects, then put them together and count to get the total number which is the answer to a multiplication question. It is hoped that the teachers will use equal groups of objects a number of times to relate repeated addition with multiplication sentences.

The concept of repeated addition is further developed in this sub strand where learners are expected to multiply single digit numbers by numbers up to 10. Digital games on multiplication should be included to make the lesson interesting and for learners to link multiplication to everyday activities.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should also involve learners in non-formal activities like working out the total number of desks in their classroom through repeated addition. The teacher may also discuss how the multiplication concept is linked to Languages and Environmental activities .Learners may visit older citizens and assist them in arranging items in groups of equal numbers as a way of promoting learning outside the school

## MULTIPLICATION

### Multiplying Single digit Numbers by 1 to 10

**Specific Lesson Learning Outcomes**

By the end of the lesson, the learner should be able to multiply single digit numbers by 1 to 10 through repeated addition up to 5 times.

**Suggested Learning Resources**

- Counters
- Multiplication table

**Key Inquiry Question**

How do we multiply using repeated addition?

**Learning Activities**

1. Guide learners in pairs or in groups to use counters in multiplying single digit numbers by 1 to 10 using repeated addition up to 5 times. Discuss the safety precautions when handling resources and materials.
2. Learners in pairs to discuss and come up with different ways of multiplying single digit numbers by 1 to 10 using repeated addition up to 5 times.
3. Using examples in the Learner's book page 150, guide learners to multiply single digit numbers by 1 to 10 using repeated addition up to 5 times.
4. Learners to play digital games involving multiplication. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 150

## MULTIPLICATION

### Multiplying Numbers Up to 5 x 5

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to multiply numbers up to 5 x 5.

**Suggested Learning Resources**

- Multiplication table
- counters

**Key Inquiry Question**

How do we multiply numbers?

**Learning activities**

1. Guide learners in pairs or in groups to use multiplication table or counters in multiplying numbers up to 5 x 5. Discuss the safety precautions when handling resources and materials.
2. Learners in pairs to discuss and come up with different ways of multiplying numbers up to 5 x5.
3. Using examples in the Learner's book page 152, guide learners to multiply numbers up to 5 x5.
4. Learners to play digital games involving multiplication. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the Learner's book page 152.

## MULTIPLICATION

### Multiplying 6

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to multiply 6 by numbers 1 to 10.

**Suggested Learning Resources**

- Multiplication table
- counters

**Key Inquiry Question**

How do we multiply numbers?

**Learning activities**

1. Guide learners in pairs or in groups to use multiplication table or counters in multiplying 6 by numbers 1 to 10. Discuss the safety precautions when handling resources and materials.
2. Learners in pairs to discuss and come up with different ways of multiplying 6 by numbers 1 to 10.
3. Using examples in the learner's book page 154, guide learners to multiply 6 by numbers 1 to 10.
4. Learners to play digital games on multiplication. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 154

## MULTIPLICATION

### Multiplying 7

**Specific Lesson Learning Outcomes**

By the end of the lesson, the learner should be able to multiply 7 by numbers 1 to 10.

**Suggested Learning Resources**

- Multiplication table
- counters

**Key Inquiry Question**

How do we multiply numbers?

**Learning Activities**

1. Guide learners in pairs or in groups to use multiplication table or counters in multiplying 7 by numbers 1 to10. Discuss the safety precautions when handling resources and materials.
2. Learners in pairs to discuss and come up with different ways of multiplying 7 by numbers 1 to10.
3. Using examples in the learner's book page 156, guide learners on how to multiply 7 by numbers 1 to 10.
4. Learners to play digital games on multiplication. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 156

## DIVISION

**Time - 3 lessons**

**Background Information**

Division is taught for the first time in this grade. However, it is not a new concept as learners have had experiences in their day to day life or even during play. Division is introduced as repeated subtraction hence it is important for the learners to have mastered subtraction of whole numbers. In this sub strand the relationship between multiplication and division will be taught and the learners will be expected to use the multiplication table to get the result of division questions as division is the inverse of multiplication. Digital games involving division will enhance the development of this concept. For learners with hearing impairment the devices should have signed instructions.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should also involve learners in non-formal activities including planting seedlings in rows in the school compound. The teacher may also discuss how the division concept is linked to Languages and Environmental activities. Learners could visit children's homes and share fruits with them as a way of giving back to the community.

## DIVISION

### Dividing numbers up to 25

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to divide numbers up to 25 based on basic multiplication facts.

**Suggested Learning Resources**

- Multiplication table
- Counters

**Key Inquiry Question**

How do we divide numbers?

**Learning Activities**

1. Guide learners in pairs or in groups to use multiplication table or counters in dividing numbers up to 25 on basic multiplication facts. Discuss the safety precautions when handling resources and materials.
2. Learners in pairs or groups to discuss and come up with different ways of dividing numbers up to 25 on basic multiplication facts
3. Using examples in learner's book page 158 , guide learners to divide numbers up to 25 on basic multiplication facts.
4. Learners to play digital games involving division. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 159

## DIVISION

### Dividing numbers up to 90 by 6, 7, 8 and 9

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to divide numbers up to 90 by 6, 7, 8 and 9 using multiplication table.

**Suggested Learning Resources**

- Multiplication table
- counters

**Key Inquiry Question**

How do we use multiplication table to work out division?

**Learning Activities**

1. Learners to identify the number to be divided in the multiplication table.
2. Learners move horizontally from the number to be divided along the row to the end and vertically along the column to the end to identify the two numbers.
3. Guide learners to relate the two numbers identified in activity two (2) to division
4. Using the example in the learner's book page 160 , guide learners to divide numbers up to 90 by 6,7,8 and 9.
5. Learners to play digital games on division. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 161.

## DIVISION

### Dividing numbers up to 90 by 6, 7, 8 and 9 by long division

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to divide numbers up to 90 by 6, 7, 8 and 9 using multiplication tables.

**Suggested Learning Resources**

- Multiplication table
- Counters

**Key Inquiry Question**

How do we use the multiplication table to work out division questions?

**Learning Activities**

1. Guide learners to write the division question in long division form.
2. Using the multiplication table, guide learners to identify how many times the number dividing goes into the number being divided.
3. Guide learners to write the number found, on top of the last digit of the number being divided and complete the division.
4. Using the example in the learner's book page 162 , guide learners to divide numbers up to 90 by 6, 7, 8 and 9 using multiplication tables.
5. Learners to play digital games in division. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the Learner's book page 163.

**General Learning Outcome**

By the end of this strand, the learner should be able to describe properties of geometrical shapes and spatial relationships in real life experiences.

## LENGTH

**Time - 2 lessons**

**Background Information**

The development of the concepts under measurements follows clearly defined stages. In earlier grades, under the sub strand on Length, learners compare lengths of objects directly, measure length using arbitrary units and finally measure length using fixed arbitrary units.

In this sub strand learners will be involved in measuring length in metres. The learners will also be expected to be able to estimate lengths up to 20 metres hence they should be involved in many measuring activities for them to be able to estimate.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility, among others. The teacher should also involve learners in non-formal activities including measuring lengths of fields in school during games. The teacher may also discuss how the length concept is linked to Languages and Environmental activities. Learners may assist their neighbours to measure length during building of chicken/rabbit cages, among others, as a way of promoting learning outside the classroom.

## LENGTH

### Adding and Subtracting Length

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add and subtract length in metres.

**Suggested Learning Resources**

- Metre rule
- 1 Metre sticks
- 5 Metre Strings

**Key Inquiry Question**

How do we add and subtract length in metres?

**Learning Activities**

1. Learners in pairs or in groups to measure lengths of the four walls of their classroom and record. Ask learners to add the lengths and share their experiences with other groups. Discuss the safety precautions when using resources and materials.
2. Guide learners to measure the length of a string in metres and record. Ask learners to cut off a number of metres from the string. Ask learners to measure the length of the string that is left after cutting. Using the example in the learners book, page 164 guide learners to add and subtract length in metres.
3. Learners to play digital games involving length. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 165

## LENGTH

### Estimating Length

**Specific Lesson Learning Outcome**

By the end of lesson, the learner should be able to estimate length up to 20 metres.

**Suggested Learning Resources**

- Metre rule
- 1-metre sticks
- Strings marked in metres

**Key Inquiry Question**

How do we confirm an estimated length?

**Learning Activities**

1. Guide learners to estimate length up to 20 metres and record.
2. Guide learners in pairs or groups to measure length estimated in activity one (1) and record next to the estimates. Discuss the safety precautions when using resources and materials.
3. Learners in pairs discuss how close the estimates were to the measured length and share with other groups.
4. Using the activities in the learner's book page 167, guide learners to estimate and measure length up to 20 metres.
5. Learners to play digital games involving length. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 168

## MASS

**Time - 3 lessons**

**Background Information**

The development of the concepts under measurements follows clearly defined stages. In earlier grades, under the sub strand on Mass, learners compare mass of objects directly, measure mass using arbitrary units and finally measure mass using fixed arbitrary units.

In this sub strand learners will be involved in measuring mass in kilograms and also in adding and subtracting mass in kilograms. The learners will also be expected to be able to estimate mass up to 5 kilograms hence they should be involved in many measuring activities using a beam balance or measuring scale for them to be able to estimate.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of some of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should involve learners in non-formal activities including measuring mass of items in their classroom in kilograms during their free time. The teacher may also discuss how the mass concept is linked to Languages and Environmental activities. Learners to assist their neighbours in measuring mass of items in their homes in kilograms as a way of promoting learning outside the classroom.

## MASS

### Adding Mass in Kilograms

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add mass in kilograms.

**Suggested Learning Resources**

- Items of different masses

**Key Inquiry Question**

How do we add mass in kilograms?

**Learning Activities**

1. Learners in pairs or groups are provided with packets of different items with their masses indicated.
2. Learners in pairs or groups to put together packets and state the total mass. Learners to share their experiences with other groups. Discuss the safety precautions when using resources and materials.
3. Using the example in the learner's book page 169, guide learners to add mass in kilograms in real life situations.
4. Learners to play digital games involving mass. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 169

## MASS

### Subtracting Mass in Kilograms

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to subtract mass in kilograms in real life situations.

**Learning Resources**

- Sand/soil of different masses

**Key Inquiry Question**

How do we subtract mass in kilograms?

**Learning Activities**

1. Learners in pairs or groups are provided with sand/soil of different masses in 1 kilogram packets. Discuss the safety precautions when using resources and materials.
2. Learners in pairs or groups are guided to take away some packets of sand/soil in activity one (1). Learners record the mass of the packets that remains. Learners in pairs share their experiences with other groups.
3. Using the example in the learner's book page 170, guide learners to subtract mass in real life situation.
5. Learners to play digital games involving mass. The digital devices should have signed instructions

**Work to do**

Learners work out questions from the learner's book page 170

# MASS

## Estimating Mass

### Specific Lesson Learning Outcome

By the end of the lesson, the learner should be able to estimate mass use a 5 kilogram mass to compare other masses.

### Suggested Learning Resources

- Beam balance
- Objects with different masses

### Key Inquiry Question

How do we use given mass to compare other masses?

### Learning Activities

1. Guide learners in pairs or in groups to estimate and record mass of different objects up to 5 kilograms.
2. Learners in pairs or groups measure mass of different objects and record alongside the estimates. Ask learners to discuss how close the estimates were to measured mass.
3. Using the activity in the learner's book page 171, guide learners to estimate mass up to 5 kilograms.
4. Learners to play digital games involving mass. The digital devices should have signed instructions

### Work to do

Learners to work out questions from the learner's book page 171

## CAPACITY

**Time - 3 lessons**

**Background Information**

The development of the concepts under measurements follows clearly defined stages. In earlier grades, under the sub strand on capacity, learners compare capacity of containers directly through filling and emptying using water, measure capacity of containers using arbitrary units, and finally measure capacity of containers using fixed arbitrary units.

In this sub strand learners will be involved in measuring capacity in litres and also in adding and subtracting capacity in litres. The learners should be involved in a variety of measuring activities using a 1- litre container for them to be able estimate capacity up to 5 litres.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies.

The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should involve learners in non-formal activities including measuring capacity of containers in their classroom in litres during their free time. The teacher may also discuss how capacity is linked to Languages and Environmental activities. As a way of promoting learning outside the classroom learners may assist their neighbours in measuring capacity of containers used for storing liquids

# CAPACITY

## Adding Capacity in Litres

### Specific Lesson Learning Outcome

By the end of the lesson, the learner should be able to add capacity in real life situations.

### Suggested Learning Resources

- 1 litre containers
- Water

### Key Inquiry Question

How do we add capacity in real life?

### Learning Activities

1. Guide learners in pairs or groups to measure the capacity of two different containers. Discuss the safety precautions when using resources and materials.
2. Learners in pairs or groups to combine the water in the different containers and measure the resulting amount. Learners discuss in pairs their experiences with other groups.
3. Using the activity in the learner's book page 173, guide learners to add capacity in litres in real life situations .
4. Learners to play digital games involving capacity. The digital devices should have signed instructions

### Work to do

Learners to work out questions from the learner's book page 173

# CAPACITY

## Subtracting Capacity in Litres

### Specific Lesson Learning Outcome

By the end of the lesson, the learner should be able to subtract capacity in litres in real life situations.

### Suggested Learning Resources

- 1 litre containers
- Water
- Counters
- Place value chart

### Key Inquiry Question

How do we subtract capacity in litres?

### Learning Activities

1. Learners in pairs or groups to measure the capacity of two different containers. Discuss the safety precautions when using resources and materials.
2. Learners in pairs or groups to remove some litres of water from containers in activity one (1) and pour it in another container.
3. Learners measure the amount of water in containers in activity two (2) and record. Let learners share their experiences.
4. Using the example in the learner's book page 174 , guide learners to subtract capacity in litres in real life situations.
5. Learners to play digital games involving capacity.The digital devices should have signed instructions

### Work to do

Learners to work out questions from the learner's book page 174

# CAPACITY

## Estimating Capacity

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to estimate capacity up to 5 litres.

**Suggested Learning Resources**

- 1 litre containers
- Containers of different capacities
- Water

**Key Inquiry Question**

How do we estimate capacity?

**Learning Activities**

1. Guide learners in pairs or in groups to estimate and record capacity of different containers up to 5 litres.
2. Learners in pairs or groups measure capacity of different containers and record alongside the estimates. Ask learners to discuss how close the estimates were to measured capacity.
3. Using the activity in the learner's book page 175, guide learners to estimate capacity up to 5 litres.
4. Learners to play digital games involving capacity. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 175

## TIME

**Time - 4 lessons**

**Background Information**

The concept of time is introduced by relating daily activities to different times of the day like morning, noon, evening and night while the days and months of the year are related to the various activities done in a particular day or month. Time just like other measurements is first measured using arbitrary units before using the standard units which include hours, minutes and seconds. In this sub strand, reading and telling of time involves both the analogue and digital clocks. When dealing with addition and subtraction of units of time, the teacher should bring out real life experiences in which duration of time can be comprehended. Estimation of time is an important aspect in day to day life hence learners should be involved in estimating time durations.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should involve learners in non-formal activities including cleaning their classroom during free time. The teacher may also discuss how the time concept is linked to Language activities and Religious activities. As a form of community service learning activity learners could assist their neighbours in keeping their compounds clean during school holidays.

## Week 10 Lesson 2

## TIME

**Reading, signing and Telling Time "to" the Hour**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to read,sign and tell time "to" the hour using the clock face.

**Suggested Learning Resources**

- Clock face
- Digital clock

**Key Inquiry Question**

How do we read and sign time "to" the hour?

**Learning Activities**

1. Guide learners in pairs or group to read, sign and tell time "to" the hour.
2. Learners in pairs or groups mark different times on their clock face and read, sign and tell marked time "to" the hour.
3. Using the examples in the learner's book page 176, guide learners to read, sign and tell time "to" the hour.
4. Learners to play digital games involving time. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 176

## Week 10 Lesson 3

**Reading,signing and Telling Time Using a Digital Clock**

**Specific lesson Learning outcome**

By the end of the lesson, the learner should be able to read, sign and tell time using a digital clock.

**Suggested Learning Resources**

- Digital clock
- Clock model
- Mobile phone

**Key Inquiry Question**

How do we read, sign and tell time on a digital clock?

**Learning Activities**

1. Guide learners in pairs or in groups to read, sign and tell time on a digital clock, using the 12 hour clock system.
2. Using the example in the learner's book page 177, guide learners to read, sign and tell time on the digital clock. The digital devices should have signed instructions

**Work to do**

Learners work out questions from the pupil's book page177

## Week 10 Lesson 4

**TIME**

**Writing Time using "Past" the Hour**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to write time "past" the hour.

**Learning Resources**

- Clock face

**Key Inquiry Question**

How do we write time "past" the hour?

**Learning Activities**

1. Learners in pairs or groups mark different times on their clock face and read and write marked time "past" the hour.
2. Guide learners in pairs or group to read,sign and write time "past" the hour.
3. Using the examples in the learner's book page 179, guide learners to read, sign and write time "past" the hour.

4. Learners to play digital games involving time. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 179

## Week 10 Lesson 5

### TIME

**Writing Time "to" the Hour**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to write time 'to' the hour

**Suggested Learning Resources**

- Clock face

**Key Inquiry Question**

How do we write time "to" the hour?

**Learning Activities**

1. Learners in pairs or groups to mark time 'to' the hour on the clock faces.
2. Guide learners in pairs or groups to read, sign and write time "to" the hour.
3. Using the example in the learner's book page 180 , guide learners to write time "to" the hour.
4. Learners to play digital games involving time. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 180

## MONEY

**Time - 3 lessons**

**Background Information**

The teaching of money begins with the learners being guided to identify the different currency coins and notes. In earlier grades learners perform shopping activities which lead to differentiating concepts like balance and change. Later learners are expected to be able to relate a given amount of money to goods and services.

This sub strand also includes needs and wants as well as spending and saving which learners need to understand to be able to make meaningful decisions on money issues.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, honesty, responsibility among others. As a non-formal activity learners may assist the school clerk in sorting coins and notes according to their value. The teacher may also discuss how the money concept is linked to Language, Environmental and Religious activities. As a community service activity to support learning, learners assist in counting money offered in religious and non-religious functions.

## MONEY

### Shopping Activities Involving Change

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to carry out shopping activities involving change.

**Suggested Learning Resources**

- Kenyan currency notes
- Imitation money
- price list
- shop corner

**Key Inquiry Question**

What is change in money?

**Learning Activities**

1. Guide learners in pairs or in groups to role-play giving change in the classroom shop.
2. Ask learners to share their experiences of getting change with other groups.
3. Using the example in the learner's book page 181 , guide learners to carry out shopping activities involving change.
4. Learners to play digital games involving money. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 182

## MONEY

### Shopping Activities Involving Balance

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to carry out shopping activities involving balance.

**Suggested Learning Resources**

- Kenyan currency notes and coins
- Imitation money
- price list
- shop corner

**Key Inquiry Question**

What is balance in money?

**Learning Activities**

1. Guide learners in pairs or in groups to role-play giving balance in the classroom shop.
2. Ask learners to share their experiences with other groups.
3. Using the examples in the learner's book page 183, guide learners to carry out shopping activities involving balance.
4. Learners to play digital games involving money. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 183

## MONEY

### Adding and Subtracting Money Involving Shillings

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add and subtract money up to sh. 1000.

**Suggested Learning Resources**

- Kenyan currency notes and coins
- Imitation money

**Key Inquiry Question**

How do we add and subtract money in shillings?

**Learning Activities**

1. Provide learners with real and imitation money. Ask learners in pairs or groups to put together notes of different denominations and state their total value.
2. Learners in pairs or groups to take away some notes from the ones in activity one (1) and state the value of the remainder. Learners to share their experiences with other groups
3. Using the examples in the learner's book page 184 , guide learners to add and subtract money up to sh. 1000.
4. Learners to play digital games involving money.The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 184

**General Learning Outcome**

By the end of this strand, the learners should be able to describe properties of geometrical shapes and spatial relationships in real life experiences.

## POSITION AND DIRECTION

**Time - 2 lessons**

**Background Information**

The learning of geometry starts with the learners modeling straight and curved lines. Position and direction is an important aspect in our day to day life hence the need to consider this in this sub strand. It is expected that the learners will be able to follow instructions on moving straight, turning right or left and even guide people to follow directions to get to a destination.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies.

The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should involve learners in non-formal activities including arranging seats in straight lines in the classroom. The teacher may also discuss how the position and direction concept is linked to Movement and creative and Environmental activities. As a community service activity to support learning learners could assist in arranging seats in straight lines in community functions.

## POSITION AND DIRECTION

### Turning to the Right

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to move along a straight line from a point and turn to the right.

**Suggested Learning Resources**

- School compound
- pictures

**Key Inquiry Question**

What do we do when we get to a road junction?

**Learning Activities**

1. Guide learners in pairs or groups to discuss the direction to take after reaching a road junction. Learners to write possible directions to take at a road junction.
2. The teacher to take learners for an outdoor activity involving turning right. Guide learners to identify their right hands. Discuss safety precautions when performing the activity.
3. Using the picture in the learner's book page 186, discuss with the learners how to turn right from a point in real life situations.
4. Learners to play digital games involving position and direction. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 186.

## POSITION AND DIRECTION

### Turning to the Left

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should able to move along a straight line from a point and turn to the left.

**Suggested Learning Resources**

- School compound
- Pictures

**Key Inquiry Question**

What do we do when we get to a road junction?

**Learning Activities**

1. Take learners out of the classroom. Guide the learners to identify their left hands. Guide the learners to move along a straight line and then turn left.
2. Ask learners in pairs to practice moving along straight lines from a point and then turning left.
3. Using the picture in the learner's book page 187, discuss with the learners how to turn left from a point in real life situations.
4. Learners to play digital games involving position and direction. The digital devices should have signed instructions

**Work to do**

Learners to work out questions from the learner's book page 187.

## ANSWERS FOR TERM 2

### WEEK 1 LESSON 1

| | |
|---|---|
| Buffalo | thirteenth |
| Cow | fourteenth |
| Giraffe | Seventh |
| Gazelle | Ninth |
| Sheep | fifteenth |
| Cat | eigth |

### WEEK 1 LESSON 2

13th

11th

14th

15th

12th

### WEEK 1 LESSON 3

| | | | |
|---|---|---|---|
| 2. | 728 | 733 | 738 |
| 3. | 640 | 645 | 650 |
| 4. | 920 | 925 | 930 |
| 5. | 985 | 980 | 975 |
| 6. | 566 | 561 | 556 |
| 7. | 455 | 450 | 445 |

### WEEK 1 LESSON 4

| | | |
|---|---|---|
| 2. | 0 tens | 9 ones |
| 3. | 6 tens | 5 ones |

4. 3 tens 0 ones
5. 5 tens 4 ones
6. 75 = 7 tens 5 ones
7. 92 = 9 tens 2 ones
8. 41 = 4 tens 1 ones
9. 37 = 3 tens 7 ones
10. 65 = 6 tens 5 ones

**WEEK 1 LESSON 5**

| | | | | |
|---|---|---|---|---|
| 1. | 125 | 1 hundreds | 2 tens | 5 ones |
| 2. | 695 | 6 hundreds | 9 tens | 5 ones |
| 3. | 741 | 7 hundreds | 4 tens | 1 ones |
| 4. | 825 | 8 hundreds | 2 tens | 5 ones |
| 5. | 970 | 9 hundreds | 7 tens | 0 ones |
| 6. | 53 | __ hundreds | 5 tens | 3 ones |
| 7. | 986 | 9 hundreds | 8 tens | 6 ones |
| 8. | 731 | 7 hundreds | 3 tens | 1 ones |
| 9. | 104 | 1 hundreds | 0 tens | 4 ones |
| 10. | 258 | 2 hundreds | 5 tens | 8 ones |

**WEEK 2 LESSON 1**

Reading and signing Lesson

**WEEK 2 LESSON 2**

1. 69
2. 76
3. 75
4. 89
5. 93
6. 99
7. 100

**WEEK 2 LESSON 3**

1. Seventy seven
2. Sixty four
3. Eighty seven
6. Ninety eight
7. Ninety
8. NInety three
9. One hundred

**WEEK 2 LESSON 4**

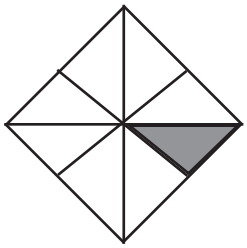
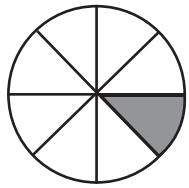
1. 84, 80
2. 330, 336,339
3. 58, 52
4. 470, 490
5. 440, 450
6. 353, 349

**WEEK 2 LESSON 5**

1. 860, 856
2. 220, 223
3. 723, 727
4. 525, 520,515
5. 430, 330
6. 390, 470

## WEEK 3 LESSON 1

1. a) $\frac{1}{8}$ b) $\frac{1}{8}$ c) $\frac{1}{8}$

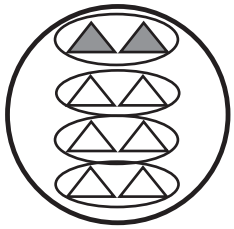
2.a)  b)  c) 

## WEEK 3 LESSON 2

1. a
2. b
3. a
4. b

## WEEK 3 LESSON 3

1. 2

2. a)  b) Let learners shade accurately

3. a) 6 b) 8 c) 9 d) 12

## WEEK 3 LESSON 4

1. 3

2. a) 2 b) 2 c) 5

3. Mark correct drawings

**WEEK 3 LESSON 5**

1. 278
2. 399
3. 489
4. 887
5. 998
6. 577
7. 659
8. 769
9. 198
10. 897

**WEEK 4 LESSON 1**

1. 289
2. 786
3. 198
4. 673
5. 388
6. 984
7. 492
8. 558
9. 291
10. 899

**WEEK 4 LESSON 2**

1. 294
2. 391
3. 461
4. 594
5. 760
6. 861
7. 884
8. 983
9. 895
10. 682

## WEEK 4 LESSON 3

1. 338
2. 419
3. 727
4. 745
5. 607
6. 836
7. 919
8. 538
9. 205
10. 316

## WEEK 4 LESSON 4

1. 12
2. 18
3. 17
4. 18
5. 18
6. 16
7. 18
8. 17
9. 18
10. 18

## WEEK 4 LESSON 5

1. 388
2. 589
3. 799
4. 917
5. 555
6. 853
7. 992
8. 973
9. 991
10. 999

## WEEK 5 LESSON 1

1. 380
2. 580
3. 593
4. 581
5. 753
6. 780
7. 960
8. 765
9. 984
10. 390

## WEEK 5 LESSON 2

1. 519
2. 746
3. 727
4. 826
5. 916
6. 693
7. 737
8. 514
9. 808

## WEEK 5 LESSON 3

1. 610, 685
2. 700, 760
3. 400, 450
4. 350, 425
5. 610, 670
6. 850, 1000
7. 600, 680

## WEEK 5 LESSON 4

1. 21
2. 42
3. 25
4. 24
5. 12
6. 22
7. 24 cups
8. 24 books
9. 35 learners
10. 52 learners

## WEEK 5 LESSON 5

1. 134
2. 233
3. 303
4. 442
5. 500
6. 223
7. 674
8. 787
9. 893 bags
10. 341 trees

## WEEK 6 LESSON 1

1. 24
2. 19
3. 49
4. 1
5. 6
6. 29
7. 15 packets
8. 26 bags
9. 48 learners
10. 18 sticks

## WEEK 6 LESSON 2

1. 339
2. 548
3. 456
4. 265
5. 884
6. 927
7. 609 kg
8. 779 goats
9. 148 books
10. 119 packets

## WEEK 6 LESSON 3

1. 112
2. 255
3. 473
4. 115
5. 242
6. 111
7. 103 seedlings
8. 108 bags
9. 154 sheep
10. 243 litres

## WEEK 6 LESSON 4

1. 355
2. 877
3. 778
4. 614
5. 585
6. 636
7. 175
8. 441 fish
9. 253 bags
10. 119 packets

## WEEK 6 LESSON 5

1. 50
2. 10
3. 330
4. 440
5. 100
6. 600
7. 20
8. 10
9. 0
10. 50 learners

## WEEK 7 LESSON 1

1. 35, 30
2. 111, 109
3. 140, 130
4. 276, 272
5. 381, 378
6. 600, 550
7. 120, 20
8. 704, 701

## WEEK 7 LESSON 2

1. 5
2. 5 x2 = 10
3. 3 x 5 = 15
4. 3 x 4 = 12
5. 9 x 4 = 36
6.

| x | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 2 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 |
| 3 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 |
| 4 | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 |
| 5 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 |

## WEEK 7 LESSON 3

1. a) 3 x4 = 12 b) 3 x 5 = 15
2. a) 6 b) 10 c) 15 d) 25
3. a) 20 b) 12 c) 5 d)16 e) 8
   f) 4

4.

| x | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 1 | 1 | 2 | 3 | 4 | 5 |
| 2 | 2 | 4 | 6 | 8 | 10 |
| 3 | 3 | 6 | 9 | 12 | 15 |
| 4 | 4 | 8 | 12 | 16 | 20 |
| 5 | 5 | 10 | 15 | 20 | 25 |

**WEEK 7 LESSON 4**

1. 3x 6 = 18 apples
2. a) 36 b) 42 c) 48
3. a) 54 b) 60
4. 30 questions
5. 30 bananas

**WEEK 7 LESSON 5**

1. 3 x 7 = 21
2. a) 35 b) 28 c) 49
3. a) 56 b) 63
4. 14 pieces
5. 21 trees

**WEEK 8 LESSON 1**

1. 3
2. 9
3. 6
4. 2
5. 2
6. 5
7. 5
8. 6 oranges
9. 6 pencils
10. 5 water melons

**WEEK 8 LESSON 2**

1. 8
2. 9
3. 2
4. 3
5. 3
6. 9
7. 6
8. 4 books
9. 8 rubbers
10. 9 bags

**WEEK 8 LESSON 3**

1. 8
2. 8
3. 3
4. 9
5. 4
6. 5
7. 3
8. 9 oranges
9. 9 biscuits
10. 5 bottles

**WEEK 8 LESSON 4**

1. a) 270 metres b) 170 metres c) 100 metres
2. 33 metres
3. 395 metres

**WEEK 8 LESSON 5**

Guide learners to make accurate measurements of the objects, then confirming their estimates

**WEEK 9 LESSON 1**

1. 9 kg
2. 7 kg
3. 5 kg
4. 34 kg
5. 17 kg

**WEEK 9 LESSON 2**

1. 15 kg
2. 7 kg
3. 12 kg

**WEEK 9 LESSON 3**

Guide learners accordingly as they compare other masses with the 5kg mass.

**WEEK 9 LESSON 4**

1. 7 litres
2. 31 litres
3. 191 litres
4. 23 litres
5. 21 litres

**WEEK 9 LESSON 5**

1. 38 litres
2. 55 litres
3. 415 litres
4. 686 litres
5. 11 litres

**WEEK 10 LESSON 1**

Guide learners accordingly in estimating and confirming capacity

**WEEK 10 LESSON 2**

1. a quarter to 6
2. a quarter to 11
3. 20 minutes to 5
4. 10 minutes to 8
5. quarter to 3
6. quarter to 12
7. 10 minutes to 1
8. 25 minutes to 5

**WEEK 10 LESSON 3**

1. quarter to noon
2. quarter past 3
3. 3 o'clock
4. quarter past 9
5. 2 o'clock
6. noon
7. 10 o'clock
8. Half past midnight
9. 5 minutes past midnight
10. midnight

**WEEK 10 LESSON 4**

1. 15 minutes
2. 30 minutes, 3
3. 20 minutes, 2
4. 5 minutes, 9
5. 10 minutes, noon or 12
6. 30 minutes, 10

**WEEK 10 LESSON 5**

1. 15 minutes to 12
2. 20 minutes to 2
3. 10 minutes to 3
4. 5 minutes to 4
5. 25 minutes to 2
6. 15 minutes to 11

**WEEK 11 LESSON 1**

1. 2
2. 2
3. 4
4. 5
5. 5
6. 1
7. 2

**WEEK 11 LESSON 2**

1. sh. 200
2. sh. 50
3. sh. 50

**WEEK 11 LESSON 3**

1. sh. 382
2. sh. 611
3. sh. 789
4. sh. 928
5. sh. 494
6. sh. 350
7. sh. 115

**WEEK 11 LESSON 4**

1. right
2. right
3. right

**WEEK 11 LESSON 5**

1. left
2. left
3. left

# TERM THREE

**General Learning Outcome**

By the end of this strand, learners should demonstrate mastery of number concepts by working out problems in day to day life

## NUMBER CONCEPT

**Time - 2 lessons**

**Background Information**

Learners have already learnt how to sort, match and order items either in increasing or decreasing order. The learners at this level are also able to count numbers in symbols up to 100. In this sub strand, learners will be expected to apply previous knowledge acquired in identifying positions from 1 – 20. Learners will all be expected to play digital games using their LDD or any other IT devices. For learners with hearing impairment, the digital devices should have signed instructions.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism, responsibility among others. The teacher should also involve learners in non-formal activities including counting different types of items in their classroom. The teacher may also discuss how the number concept is linked to language, and Hygiene and Nutrition activities. The teacher may organize visits to homes of the elderly for learners to be told stories of how they used to count their possessions as a way of promoting learning outside the school.

## NUMBER CONCEPT

### Ordinal Number Names 1 to 20

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to use ordinal number names to identify position from 1 to 20.

**Suggested Learning Resources**

- Number cards.
- Felt pens.
- Books.
- Playground
- pictures

**Key Inquiry Question**

How do you identify position of rally cars in a competition?

**Learning Activities**

1. Guide learners to form groups and then ask them to engage in a running activity outside the classroom.
2. Learners to form a queue as they complete the race/activity at the finishing line.
3. Learners to assign ordinal numbers to the competitors as first, second up to twentieth.
4. Guide learners to read the ordinal number names: first, second, up to twentieth.
5. Using the example in the learner's book, page 191 guide learners in using ordinal number names to identify the positions: first, second up to twentieth.
6. Learners to play digital games involving whole numbers. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 192

## Week 1 Lesson 2

## NUMBER CONCEPT

### Ordinal Number Symbols $1^{st}$ to $20^{th}$

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to use ordinal number symbols to identify positions from $1^{st}$ to $20^{th}$.

**Suggested Learning Resources**

- Number cards.
- Felt pens.
- Books.
- Ordinal number chart

**Key Inquiry Question**

How do you identify the positions of learners in an examination?

**Learning Activities**

1. Guide learners in pairs or in groups to arrange 20 mathematics text books on their desks from left to right.
2. Learners to place number cards with ordinal number names, first, second up to twentieth on the books.
3. Guide learners to turn over the number cards with ordinal number symbols $1^{st}$, $2^{nd}$, up to $20^{th}$ and read the symbols with emphasis on $16^{th}$,$17^{th}$,$18^{th}$,$19^{th}$ and $20^{th}$ .
4. Using the example in the learner's book page 193, guide learners on how to identify positions using symbols $1^{st}$, $2^{nd}$, up to $20^{th}$.

5. Learners to play digital games involving ordinal numbers. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 193

## WHOLE NUMBERS

**Time - 5 lessons**

**Background Information**

In grade two learners covered the counting of numbers up to 100. They also identified place value of ones, tens and hundreds as well as reading, signing, finger spelling and writing numbers in words.

In this sub strand these concepts are developed further. Learners will count up to 1000 and identify place value up to thousands. Learners will also make patterns and it is hoped that they will appreciate number patterns as they skip on the number line. The teacher should guide learners in playing digital games related to the sub strand in school and outside school. For learners with hearing impairment, the digital devices should have signed instructions.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism, and responsibility among others. The teacher should also involve learners in non-formal activities including planting flowers following a pattern in the school compound. The teacher may also discuss how the whole

number concept is linked to Language, Environmental, Movement and Creative activities. At home, learners may assist in arranging chairs and tables in rows and columns in community functions as a way of promoting learning outside the school.

## Week 1 Lesson 3

### WHOLE NUMBERS

### Counting in Tens

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to count in tens forward and backwards from 1 to 1000

**Suggested Learning Resources**

- Number cards
- Number line
- Number chart
- Place value chart
- Counters

**Key Inquiry Question**

How do you count in tens?

**Learning Activities**

1. Guide learners in pairs or in groups to count in tens both forward and backwards using objects.
2. Learners in groups to place number cards on the groups of objects formed in activity 1.
3. Using the example in the learner's book page 194, guide learners to count in tens from 1 to 1000 both forward and backwards.
4. The learners to play digital games involving whole numbers. The digital devices should have signed instructions,

**Work to do**

Learners to work out questions from the learner's book page 194

## Week 1 Lesson 4

### WHOLE NUMBERS

### Place Value

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to identify place value up to thousands.

**Suggested Learning Resources**

- Abacus
- Place value tins
- Place value chart
- Counters

**Key Inquiry Question**

How do you identify the place value of numbers?

**Learning Activities**

1. Guide learners in pairs or groups to represent various numbers using abacus/place number tins.
2. Learners in pairs or in groups to identify ones, tens, hundreds and thousands from the abacus/place value tins.
3. Using the example in the learner's book page 195, guide learners in identifying place value of ones, tens, hundreds and thousands.
4. Learners to play digital games involving whole numbers. The devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 196

## WHOLE NUMBERS

### Reading and signing Numbers 1 to 1000 in Symbols

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to read and sign numbers 1 to 1000 in symbols.

**Suggested Learning Resources**

- Number charts with number symbols
- Flash cards
- Number Cards

**Key Inquiry Question**

What do you consider when reading and signing numbers?

**Learning Activities**

1. Guide learners in pairs or groups to read and sign the numbers 1 to 1000 in symbols
2. Ask learners in pairs or groups to read and sign numbers 1 to 1000 in symbols using flash cards and number cards
3. Using the examples in the learner's book page 197, guide learner's in reading and signing numbers 1 to 1000 in symbols.
4. Learners to play digital games involving whole numbers. The devices should have signed instructions.

**Work to do**

Learners to work out the activity in the learner's book page 197

## WHOLE NUMBERS

### Reading, Signing and Writing Numbers in Words

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to read,sign and write numbers 1 to 100 in words.

**Suggested Learning Resources**

- Number chart with number symbols and number names
- Flash cards

**Key Inquiry Question**

What do you consider when reading, signing and writing numbers in words?

**Learning Activities**

1. Guide learners in pairs or in groups to read, sign and write numbers 1 to 100 in words.
2. Ask learners in pairs or groups to match number words with number symbols (1 to 100).
3. Learners in pairs or groups to read, sign and write numbers 1 to100 in words.
4. Using the example in the learner's book page 198, guide learners in reading, signing and writing whole numbers 1 to 100 in words.
5. Learners to play digital games involving whole numbers. The devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 198.

## WHOLE NUMBERS

### Number Patterns

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to find missing numbers in number patterns up to 1000.

**Suggested Learning Resources**

- Number cards
- A hundred chart
- Pocket boards

**Key Inquiry Question**

How do you find missing numbers in number patterns?

**Learning Activities**

1. Guide learners in pairs or in groups to use number cards, hundred chart and pocket boards to find missing numbers in number patterns.
2. Ask learners in pairs or groups to discuss and come up with different ways of finding missing numbers.
3. Using the examples in the learner's book page 199, guide learners in finding missing numbers in number patterns.
4. Learners to play digital games involving whole numbers. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 200.

## FRACTIONS

**Time - 2 lessons**

**Background Information**

In this sub strand learners will be introduced to a fraction as part of a whole and as part of a group. Learners may, however, have experiences from home where they have shared whole items like fruits, sweets or even bread.

It is from this background that the teacher can introduce a half (½), a quarter (¼) and an eighth (⅛) as part of a whole using items like an orange, piece of stick, loaf of bread, circular and rectangular cut-outs. In introducing fractions as part of a group the teacher may use items like pebbles, marbles, sticks, bottle tops or any other safe type of counter. Knowledge of division, sorting and grouping acquired in earlier grades will be useful in this sub strand.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of some of the basic education curriculum core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should also involve learners in non-formal activities including sharing edible food items in halves and quarters in school. The teacher may also discuss how the concept on fractions is linked to Language and Hygiene and nutrition activities. Learners may assist in sharing items in halves and quarters in community functions as a way of promoting learning outside the school

## FRACTIONS

### Comparing ½, ¼ and 1/8 as Part of a Whole

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to compare ½, ¼ and ⅛ as part of a whole.

**Suggested Learning Resources**

- Manila cutouts
- Pair of scissors

**Key Inquiry Question**

How do you compare ½ , ¼ and 1/8 as part of a whole?

**Learning Activities**

1. Guide learners in pairs or in groups to cut circular cutouts. Discuss the safety precautions when handling sharp objects.
2. Ask learners to find out how to get a ½, ¼ and ⅛ of circular cutouts.
3. Ask learners to fold the circular cutouts into 2, 4 and 8 equal parts.
4. Learners to identify ½, ¼ and ⅛ as part of a whole.
5. Guide learners to compare ½, ¼, and 1/8 .
6. Using the example in the learner's book page 201, guide the learner's to compare ½, ¼ and 1/8 as part of a whole.
7. Learners to play digital games involving fractions. The devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 201.

## FRACTIONS

### Comparing ½, ¼ And 1/8 as Part of a Group

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to compare ½, ¼ and1/8 as part of a group.

**Suggested Learning Resources**

- Bottle tops
- Sticks
- other counters

**Key Inquiry Question**

How do you compare ½, ¼ and 1/8 as part of a group?

**Learning Activities**

1. Guide learners to share bottle tops in two groups. Learner's to explain what fraction each group represents.
2. Learners to share bottle tops into four equal groups. Learner's to explain what fraction each group represents.
3. Learners to share bottle tops into eight equal groups. Learner's to explain what fraction each group represents.
4. Guide the learners to compare ½, ¼ and 1/8 as part of a group.
5. Using the examples in the learner's book page 202, guide learners to compare ½, ¼ and 1/8 as part of a group.
6. Learners to play digital games involving fractions. The devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 203

## ADDITION

**Time - 8 lessons**

**Background Information**

Addition of up to two 2-digit numbers with and without regrouping has already been covered in the previous grades. Learners have also learnt how to work out missing numbers in patterns involving addition up to 100. This sub strand will build on this knowledge to extend the addition of whole numbers. Learners will therefore be involved in the addition of up to two 3-digit numbers with single regrouping in ones or tens. The concept of number patterns involving addition is also extended to 1000. The teacher can search for digital games that involve addition and guide the learners in playing them. For learners with hearing impairment, the digital devices should have signed instructions.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should also involve learners in non-formal activities including planting flowers in patterns in school. The teacher may also discuss how the addition concept is linked to Languages and Hygiene and Nutrition activities. The teacher may organize visits to older citizen's homes for learners to assist them in working out the total number of different items in their homes as a way of extending learning outside the school.

## ADDITION

### Adding a 3- digit number to a 1- digit number

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add a 3-digit number to a 1- digit number vertically and horizontally without regrouping with sum (total) not exceeding 1000

**Suggested Learning Resources**

- Place value tins with sticks or straws
- Place value chart
- Abacus
- Other counters

**Key Inquiry Question**

What do you consider when adding numbers vertically and horizontally?

**Learning Activities**

1. Guide learners in pairs or in groups to use place value apparatus to add a 3 digit number to a 1- digit number with sum (total) not exceeding 1000. Discuss the safety precautions when handling resources and materials.
2. Ask learners in pairs or groups to discuss how to add a 3 digit number to a 1- digit number vertically and horizontally without regrouping with sum (total) not exceeding 1000.
3. Guide learners in working out examples in the learner's book page 204.
4. Guide learners in playing digital games involving addition. The devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 204

## ADDITION

### Adding a 3- digit number to a 2- digit number

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add a 3- digit number to 2- digit number without regrouping vertically and horizontally with sum (total) not exceeding 1000

**Suggested Learning Resources**

- Place value tins with sticks or straws
- Place value chart
- Abacus
- Other counters

**Key Inquiry Question**

How do you add numbers vertically?

**Learning Activities**

1. Guide learners in pairs or in groups to use the place value apparatus in doing addition. Discuss the safety precautions when handling resources and materials.
2. Learners in pairs to discuss how to add a 3 digit number to a 2-digit number vertically and horizontally without regrouping with sum (total) not exceeding 1000.
3. Discuss with the learners how to add a 3 digit number to a 2- digit number vertically and horizontally without regrouping with sum (total) not exceeding 1000.
4. Guide the learners in working out the example in learner's book page 205.
5. Guide learners in playing digital games involving addition of a 3 digit number to a 2- digit number without regrouping with sum (total) not exceeding 1000. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 205

## Week 3 Lesson 2

## ADDITION

### Adding a 3- digit number to a 1- digit number

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add a 3- digit number to a 1- digit number vertically and horizontally with regrouping from ones with sum (total) not exceeding 1000

**Suggested Learning Resources**

- Place value tins with sticks or straws
- Place value chart
- Abacus
- Other counters

**Key Inquiry Question**

How do you add numbers vertically?

**Learning Activities**

1. Guide learners in pairs or in groups to use the place value apparatus to add a 3- digit number to a 1- digit number. Discuss the safety precautions when handling resources and materials.
2. Discuss with the learners how to add a 3 digit number to a 1- digit number vertically and horizontally with regrouping by separating from ones with sum (total) not exceeding 1000.
3. Guide the learner's in working out examples in the learner's book page 206.
4. Guide learners in playing digital games involving addition. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 206

## ADDITION

### Adding a 3- digit number to 2- digit number

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add a 3- digit number to 2- digit number vertically with regrouping from tens with sum (total) not exceeding 1000

**Suggested Learning Resources**

- Place value tins with sticks or straws
- Place value chart
- Abacus with bottle tops
- Other counters

**Key Inquiry Question**

How do you add numbers vertically?

**Learning Activities**

1. Guide learners in pairs or in groups to use place value apparatus to add a 3- digit number to 2- digit number. Discuss the safety precautions when handling resources and materials.
2. Discuss with the learners how to add a 3-digit number to a 2- digit number vertically with regrouping by separating from tens with sum (total) not exceeding 1000.
3. Guide learners in working out examples in learner's book page 207.
4. Guide learners in playing digital games involving addition. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 207

## Adding 3-single digit numbers

### Specific Lesson Learning Outcome

By the end of the lesson, the learner should be able to add 3-single digit numbers with sum (total) not exceeding 27.

### Suggested Learning Resources

- Bottle tops
- Sticks
- Grains
- Other counters

### Key Inquiry Question

How do you add more than two numbers?

### Learning Activities

1. Guide learners in pairs or in groups to use the resources given in doing addition of 3-single digit numbers. Discuss the safety precautions when handling resources and materials.
2. Discuss with the learner's how to add 3-single digit numbers with sum (total) not exceeding 27.
3. Guide learners in working out examples in learner's book page 208.
4. Guide learners in playing digital games involving addition. The digital devices should have signed instructions.

### Work to do

Learners to work out questions from the learner's book page 208

## ADDITION

### Adding two 3- digit numbers

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add two 3- digit numbers vertically and horizontally without regrouping with sum (total) not exceeding 1000

**Suggested Learning Resources**

- Place value tins with sticks or straws
- Place value chart
- Abacus
- Counters

**Key Inquiry Question**

How do you add numbers vertically?

**Learning Activities**

1. Guide learners in pairs or in groups to use place value apparatus to add two 3- digit numbers. Discuss the safety precautions when handling resources and materials.
2. Discuss with the learners how to add two 3- digit numbers vertically and horizontally without regrouping with sum (total) not exceeding 1000.
3. Guide learners in working out examples in learner's book page 209.
4. Guide learners in playing digital games involving addition.The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 209

## ADDITION

### Adding two 3- digit numbers

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add a 3- digit number to a 3- digit number vertically and horizontally with regrouping from ones and tens with sum (total) not exceeding 1000

**Suggested Learning Resources**

- Place value tins with sticks or straws
- Place value chart
- Abacus

**Key Inquiry Question**

How do you add numbers vertically?

**Learning Activities**

1. Guide learners in pairs or in groups to use the place value apparatus to add a 3 digit number to a 3- digit number. Discuss the safety precautions when handling resources and materials.
2. Discuss with learners how to add a 3 digit number to a 3- digit number vertically and horizontally with regrouping by separating from ones and tens with sum (total) not exceeding 1000.
3. Guide learners in working out examples in learner's book page 210.
4. Guide learners in playing digital games involving addition. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 211

## ADDITION

### Number patterns

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to create number patterns involving addition up to 1000.

**Suggested Learning Resources**

- Number Boards/Number grids
- Number-line
- Hundred charts

**Key Inquiry Question**

How do you create number patterns?

**Learning Activities**

1. Guide learners in pairs or in groups to discuss how to find a missing number in order to create number patterns using the hundred charts or number boards/number grids. Discuss the importance of social cohesion when looking for missing numbers.
2. Discuss with learners how to create number patterns involving addition up to 1000.
3. Using examples in the learner's book page 212, guide learners to create number patterns involving addition up to 1000.
4. Learners to play digital games involving number patterns. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 212.

## SUBTRACTION

**Time - 5 lessons**

**Background Information**

Subtraction was introduced in earlier grades as taking away. In grade two, subtraction of up to 2-digit numbers without regrouping was covered. The relationship between addition and subtraction as well as number pattern involving subtraction is also covered in grade two. It is on this pre-requisite that the concept of subtraction of up to 3-digit numbers is developed. Missing numbers in patterns involving subtraction of up to 1000 will also be taught under this sub strand.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility, among others. The teacher should also involve learners in non-formal activities including collecting litter in the school compound. The teacher may also discuss how the subtraction concept is linked to Languages and Environmental activities. Learners may participate in environmental cleaning activities organized by community members as a way of promoting learning outside the school.

## Week 4 Lesson 3

## SUBTRACTION

**Subtracting a 2-digit number from a 3-digit number**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to subtract a 2-digit number from a 3-digit number without regrouping.

**Suggested Learning Resources**

- Place value tins with sticks or straws
- Place value chart

- Abacus
- Other counters

**Key Inquiry Question**

What do you consider when subtracting numbers vertically and horizontally?

**Learning Activities**

1. Guide learners in pairs or in groups to use place value apparatus to subtract a 2 digit number from a 3- digit number without regrouping. Discuss the safety precautions when handling resources and materials.
2. Ask learners in pairs or groups to discuss how to subtract a 2 digit number from a 3- digit number vertically and horizontally without regrouping.
3. Using examples in the learner's book page 213, guide the learners in subtracting 2-digit number from a 3-digit number without regrouping.
4. Learners to play digital games involving subtraction. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 213

## Week 4 Lesson 4

### SUBTRACTION

**Subtracting a 2-digit number from a 3-digit number**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to subtract a 2-digit number from a 3-digit number with regrouping at the tens place value.

**Suggested Learning Resources**

- Place value tins with sticks or straws
- Place value chart

- Abacus
- other counters

**Key Inquiry Question**

What do you consider when subtracting numbers?

**Learning Activities**

1. Guide learner's in pairs or in groups to use place value apparatus to subtract a 2 digit number from a 3- digit number with regrouping by breaking at tens place. Discuss the safety precautions when handling resources and materials.
2. Ask learner's in pairs or groups to discuss how to subtract a 2 digit number from a 3- digit number with regrouping by breaking at tens place.
3. Using examples in the learner's book page 215, guide the learner's in subtracting a 2-digit number from a 3-digit number with regrouping by breaking at the tens place.
4. Learner's to play digital games involving subtraction. The digital devices should have signed instructions.

**Work to do**

Learner's to work out questions from the learner's book page 216

## Week 4 Lesson 5

### SUBTRACTION

**Subtracting two 3-digit numbers**

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to subtract two 3-digit numbers with regrouping at the tens place.

**Suggested Learning Resources**

- Place value tins with sticks or straws
- Place value chart
- Abacus

- Other counters

**Key Inquiry Question**

What do you consider when subtracting numbers?

**Learning Activities**

1. Guide learners in pairs or in groups to use place value apparatus in subtracting two 3-digit numbers with regrouping by breaking at the tens place. Discuss the safety precautions when handling resources and materials.
2. Learners in pairs to discuss and come up with different ways of subtracting two 3-digit numbers with regrouping by breaking at the tens place.
3. Using the example in the learner's book page 217, guide the learner's in subtracting two 3-digit numbers with regrouping by breaking at the tens place.
4. Learner's to play digital games involving subtraction. The digital devices should have signed instructions.

**Work to do**

Learner's to work out questions from the learner's book page 218

## SUBTRACTION

### Subtracting multiples of 10

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to subtract multiples of 10 up to 1000 without regrouping.

**Suggested Learning Resources**

- Place value tins with sticks or straws
- Place value chart
- Abacus
- Counters

**Key Inquiry Question**

How do you subtract multiples of 10 ?

**Learning Activities**

1. Guide learners in pairs or in groups to use place value apparatus in subtracting multiples of 10 up to 1000 without regrouping. Discuss the safety precautions when handling resources and materials.
2. Ask learners in pairs to discuss and come up with different ways of subtracting multiples of 10 up to 1000 without regrouping.
3. Using examples in the learner's book page 219, guide the learner's in subtracting multiples of 10 up to 1000 without regrouping.
4. Learners to play digital games involving subtraction. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 220.

## SUBTRACTION

### Number Patterns

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to find missing numbers in number patterns up to 1000 involving subtraction.

**Suggested Learning Resources**

- Number cards
- A hundred chart
- Pocket board
- Number line

**Key Inquiry Question**

How do you identify the missing number in a number pattern?

**Learning Activities**

1. Guide learners in pairs or in groups to use number cards, hundred chart, and pocket board to identify missing numbers in a number pattern.
2. Learners in pairs to discuss and come up with different ways of identifying missing numbers in a number pattern.
3. Using examples in the learner's book page 221, guide the learners in identifying missing numbers in a number pattern up to 1000 involving subtraction.
4. Learners to play digital games involving number patterns. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 222

## MULTIPLICATION

**Time - 3 lessons**

**Background Information**

Multiplication is introduced in grade two as repeated addition. In the modeling of these activities, the learners form groups with equal number of objects, then put them together and count to get the total number which is the answer to a multiplication question. It is hoped that the teachers will use equal groups of objects a number of times to relate repeated addition with multiplication sentences.

The concept of repeated addition is further developed in this sub strand where learners are expected to multiply single digit numbers by numbers up to 10. Digital games on multiplication should be included to make the lesson interesting and for learners to link multiplication to everyday activities.For learners with hearing impairment the digital devices should have signed instructions.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should also involve learners in non-formal activities like working out the total number of desks in their classroom through repeated addition. The teacher may also discuss how the multiplication concept is linked to Languages and Environmental activities. Learners may visit older citizens and assist them in arranging items in groups of equal numbers as a way of promoting learning outside the school

## MULTIPLICATION

### Multiplying Numbers 8, 9 and 10

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to multiply numbers 8, 9 and 10 by 1 to10 using repeated addition.

**Suggested Learning Resources**

- Counters
- Multiplication table

**Key Inquiry Question**

How do you multiply using repeated addition?

**Learning Activities**

1. Guide learners on how to work out multiplication of 8, 9 and 10 using concrete objects. Discuss the safety precautions when handling resources and materials
2. Discuss with learners how to work out multiplication using repeated addition.
3. Using examples in the learner's book page 223, guide learners on how to work out multiplication using repeated addition.
4. Learners to play digital games involving multiplication. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from learner's book page 224.

## MULTIPLICATION

### Multiplying Numbers 8, 9 and 10

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to multiply numbers 8, 9 and 10 by numbers 1 to 10.

**Suggested Learning Resources**

- Multiplication table
- counters

**Key Inquiry Question**

How do we do multiply using a multiplication table?

**Learning Activities**

1. Learners in pairs or groups to discuss how to multiply using a multiplication table.
2. Guide learners on how to work out multiplication of 8, 9 and 10 using a multiplication table.
3. Using examples in the learner's book page 225 , guide learners to multiply using a multiplication table.
4. Learners to play digital games involving multiplication.The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 226

## MULTIPLICATION

### Multiplying Numbers 8, 9 and 10

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to multiply 8, 9, and 10 by numbers 1 to10 in word questions.

**Suggested Learning Resources**

- Multiplication table
- Counters

**Key Inquiry Question**

How do we work out multiplication in word questions?

**Learning Activities**

1. Learners in pairs or groups to discuss different ways of multiplying whole numbers.
2. Guide learners on how to work out multiplication of numbers 8, 9 and 10 in word questions.
3. Using examples in the learner's book page 227, guide learners to multiply in word questions.
4. Learners to play digital games involving multiplication. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 227 .

## DIVISION

**Time - 2 lessons**

**Background Information**

Division is taught for the first time in this grade. However, it is not a new concept as learners have had experiences in their day to day life or even during play. Division is introduced as repeated subtraction hence it is important for the learners to have mastered subtraction of whole numbers. In this sub strand the relationship between multiplication and division will be taught and the learners will be expected to use the multiplication table to get the result of division questions as division is the inverse of multiplication. Digital games involving division will enhance the development of this concept. For learners with hearing impairment the digital devices should have signed instructions.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should also involve learners in non-formal activities including planting seedlings in rows in the school compound. The teacher may also discuss how the division concept is linked to Languages and Environmental activities. Learners could visit children's homes and share fruits with them as a way of giving back to the community.

## DIVISION

### Dividing numbers up to 90

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to divide numbers up to 90 by numbers 1 to 9.

**Suggested Learning Resources**

- Multiplication table
- counters

**Key Inquiry Question**

How do we use the multiplication table to work out division questions?

**Learning Activities**

1. Learners to use the multiplication table to work out multiplication and write corresponding division sentences.
2. Guide learners on how to divide using a multiplication table.
3. Learners write horizontal questions in long division form.
4. Using examples in the learner's book page 229, guide learners to divide numbers up to 90.
5. Learners to play digital games in division. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 230

## DIVISION

### Word Questions Involving Division

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to work out word questions involving division up to 81.

**Suggested Learning Resources**

- Multiplication table
- Counters

**Key Inquiry Question**

What do you consider when dividing numbers in word questions?

**Learning Activities**

1. Learners to discuss what to consider in working out division word questions
2. Guide learners on how to work out word questions.
3. Using the example in the learner's book page 231, guide learners to work out word questions in division.
4. Learners to play digital games in division. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 231

**General Learning Outcome**

By the end of this strand, the learner should be able to describe properties of geometrical shapes and spatial relationships in real life experiences.

## LENGTH

**Time - 2 lessons**

**Background Information**

The development of the concepts under measurements follows clearly defined stages. In earlier grades, under the sub strand on Length, learners compare lengths of objects directly, measure length using arbitrary units and finally measure length using fixed arbitrary units.

In this sub strand learners will be involved in measuring length in metres. The learners will also be expected to be able to estimate lengths up to 20 metres hence they should be involved in many measuring activities for them to be able to estimate.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility, among others. The teacher should also involve learners in non-formal activities including measuring lengths of fields in school during games. The teacher may also discuss how the length concept is linked to Languages and Environmental activities. Learners may assist their neighbours to measure length during building of chicken/rabbit cages, among others, as a way of promoting learning outside the classroom.

## LENGTH

### Adding Length in Metres

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add length in metres in real life situations

**Suggested Learning Resources**

- Metre rule
- Metre sticks
- 5 metre Strings
- Pictures

**Key Inquiry Question**

How do we add length in metres?

**Learning Activities**

1. Guide learners in pairs or groups to measure lengths of the four walls of their classroom. Learners to record the measurements in their exercise books. Discuss the safety precautions when handling resources and materials.
2. Discuss with learners how to add two of the lengths at a time.
3. Using examples in the learner's book page 232, guide learners on how to add length in metres.
4. Learners to play digital games involving length. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 232.

## LENGTH

### Subtracting Length in Metres

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to subtract length in metres in real life situations.

**Suggested Learning Resources**

- Metre rule
- Metre sticks
- 5 metre Strings
- Number line

**Key Inquiry Question**

How do we subtract length in metres?

**Learning Activities**

1. Guide learners in pairs or groups to measure the length of the chalk board and the walls on which it is fixed. Learners to record the measurements in their exercise books. Discuss the safety precautions when handling resources and materials.
2. Learners in pairs or groups to discuss how to work out the difference of the lengths measured in activity one. Learners to share their experiences with other groups.
3. Using examples in the learner's book page 234, guide learners on how to subtract length in metres.
4. Learners to play digital games involving length. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 234.

## MASS

**Time - 1 lesson**

**Background Information**

The development of the concepts under measurements follows clearly defined stages. In earlier grades, under the sub strand on Mass, learners compare mass of objects directly, measure mass using arbitrary units and finally measure mass using fixed arbitrary units.

In this sub strand learners will be involved in measuring mass in kilograms and also in adding and subtracting mass in kilograms. The learners will also be expected to be able to estimate mass up to 5 kilograms hence they should be involved in many measuring activities using a beam balance or measuring scale for them to be able to estimate.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of some of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should involve learners in non-formal activities including measuring mass of items in their classroom in kilograms during their free time. The teacher may also discuss how the mass concept is linked to Languages and Environmental activities. Learners to assist their neighbours in measuring mass of items in their homes in kilograms as a way of promoting learning outside the classroom.

## MASS

### Adding and Subtracting Mass in Kilograms

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add and subtract mass in kilograms in real life situations.

**Suggested Learning Resources**

- Items of different masses in the classroom shop.
- Counters
- Beam balance

**Key Inquiry Question**

What do we use to measure mass?

**Learning Activities**

1. Provide learner's in pairs or groups with different items whose masses are indicated. Let learner's discuss how to get the total mass of the items. Discuss the safety precautions when handling resources and materials.
2. Guide learner's on how to work out the total mass of any two items.
3. Learners in pairs or groups are provided with sand or soil in packets of 1 kg. Ask learners to form groups of 1kg.
4. Learners in pairs or groups are guided to take away some packets from the group formed.
5. Using examples in the learner's book page 236, guide learners to add and subtract mass in kilograms in real life situations.
6. Learners to play digital games involving mass in kilograms.The digital devices should have signed instructions.

**Work to do**

Learner's to work out questions from the learner's book page 237

## CAPACITY

**Time - 3 lessons**

**Background Information**

The development of the concepts under measurements follows clearly defined stages. In earlier grades, under the sub strand on capacity, learners compare capacity of containers directly through filling and emptying using water, measure capacity of containers using arbitrary units, and finally measure capacity of containers using fixed arbitrary units.

In this sub strand learners will be involved in measuring capacity in litres and also in adding and subtracting capacity in litres. The learners should be involved in a variety of measuring activities using a 1- litre container for them to be able estimate capacity up to 5 litres.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should involve learners in non-formal activities including measuring capacity of containers in their classroom in litres during their free time. The teacher may also discuss how capacity is linked to Languages and Environmental activities. As a way of promoting learning outside the classroom learners may assist their neighbours in measuring capacity of containers used for storing liquids

# CAPACITY

## Measuring Capacity in Litres

### Specific Lesson Learning Outcome

By the end of the lesson, the learner should be able to measure capacity in litres.

### Suggested Learning Resources

- 1 litre container
- Water
- Containers of different capacities

### Key Inquiry Question

What can we use to measure capacity?

### Learning Activities

1. Provide learners in pairs or in groups with water and containers of different capacities. Ask learners in pairs or in groups to discuss and come up with different ways of finding capacities of the containers.
2. Guide learners in pairs or in groups to measure capacity of various containers in litres using water. Discuss safety precautions when handling resources and materials.
3. Using the activity in the learner's book page 238, guide learners to measure the capacity of containers.
4. Learners to play digital games involving capacity. The digital devices should have signed instructions.

### Work to do

Learners to work out questions from the learner's book page 238

# CAPACITY

## Subtracting Capacity in Litres

### Specific Lesson Learning Outcome

By the end of the lesson, the learner should be able to subtract capacity in litres.

### Suggested Learning Resources

- 1 litre container
- Water
- Containers of different capacities.

### Key Inquiry Question

How do we subtract capacity in litres?

### Learning Activities

1. Provide learners in pairs or in groups with water and containers of different capacities. Ask learners to discuss and come up with different ways of subtracting capacity.
2. Guide learners in pairs or in groups to measure capacity of the containers and record. Discuss safety precautions when handling resources and materials.
3. Learners in pairs or groups to remove some litres of water from containers in activity two (2) and pour it into other containers.
4. Learners measure the amount of water that remained in containers in activity three (3), record and share their experiences.
5. Using the example in the learner's book page 239, guide learners to subtract capacity in litres.
6. Learners play digital games involving capacity.The digital devices should have signed instructions.

### Work to do

Learners to work out questions from the learner's book page 239

# CAPACITY

## Estimating Capacity

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to estimate capacity up to 5 litres.

**Suggested Learning Resources**

- 1 litre containers
- Water
- Containers of different capacities

**Key Inquiry Question**

How do we tell the capacity of a container without measuring?

**Learning Activities**

1. Provide learners in pairs or in groups with water and containers of different capacities. Ask learners to estimate capacity of the containers and record their estimation.
2. Guide learners in pairs or in groups to measure capacity of the containers in activity (1) and record alongside their estimation. Discuss safety precautions when handling resources and materials.
3. Learners in groups identify the difference between the estimates and the actual capacity.
4. Using the example in the learner's book page 240, guide learners to estimate capacity in litres.
5. Learners to play digital games involving capacity, The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 240

## TIME

### Time - 2 lessons

**Background Information**

The concept of time is introduced by relating daily activities to different times of the day like morning, noon, evening and night while the days and months of the year are related to the various activities done in a particular day or month. Time just like other measurements is first measured using arbitrary units before using the standard units which include hours, minutes and seconds. In this sub strand, reading, signing and telling of time involves both the analogue and digital clocks. When dealing with addition and subtraction of units of time, the teacher should bring out real life experiences in which duration of time can be comprehended. Estimation of time is an important aspect in day to day life hence learners should be involved in estimating time durations.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies.

The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unit, respect, patriotism and responsibility among others. The teacher should involve learners in non-formal activities including cleaning their classroom during free time. The teacher may also discuss how the time concept is linked to Language activities and Religious activities. As a form of community service learning activity learners could assist their neighbours in keeping their compounds clean during school holidays.

## TIME

### Adding Time in Hours and Minutes

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to add time involving hours and minutes without conversion in real life situations.

**Suggested Learning Resources**

- Clock face

**Key Inquiry Question**

How do we add time in hours and minutes?

**Learning Activities**

1. Guide learners in pairs or groups to discuss the different activities that they engage in and time taken to complete them.
2. Learners in pairs or groups discuss how to work out time taken to carry out different activities.
3. Discuss with learners how to work out time durations involving hours and minutes without conversion in real life situations.
4. Using examples in the learner's book page 241, guide learners to work out time durations involving hours and minutes without conversion in real life situations.
5. Learners to play digital games involving time. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 242.

## TIME

### Subtracting Time in Hours and Minutes

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to subtract time involving hours and minutes without conversion in real life situations.

**Suggested Learning Resources**

- Clock face

**Key Inquiry Question**

How do we subtract time in hours and minutes?

**Learning Activities**

1. Guide learners in pairs or groups to discuss the different activities that they engage in and times taken to complete them; noting the activities that take a shorter or a longer time.
2. Learners in pairs or groups discuss how to work out the time difference in performing activities.
3. Discuss with learners how to subtract time involving hours and minutes without conversion in real life situations.
4. Using the example in the learner's book page 243, guide learners to subtract time involving hours and minutes without conversion in real life situations.
5. Learners to play digital games involving time. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 243

## MONEY

**Time - 3 lessons**

**Background Information**

The teaching of money begins with the learners being guided to identify the different currency coins and notes. In earlier grades learners perform shopping activities which lead to differentiating concepts like balance and change. Later learners are expected to be able to relate a given amount of money to goods and services.

This sub strand also includes needs and wants as well as spending and saving which learners need to understand to be able to make meaningful decisions on money issues.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, honesty, responsibility among others. As a non-formal activity learners may assist the school clerk in sorting coins and notes according to their value. The teacher may also discuss how the money concept is linked to Language, Environmental and Religious activities. As a community service activity to support learning, learners assist in counting money offered in religious and non-religious functions.

## MONEY

### Relating Money To Goods And Services

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to relate money to goods and services up to sh. 1000.

**Suggested Learning Resources**

- Kenyan currency notes and coins
- A price list
- Price tags
- Assorted items from the classroom shop

**Key Inquiry Question**

How do we buy goods and pay for services?

**Learning Activities**

1. Learners in pairs or groups to share experiences on the prices of common goods and services.
2. Guide learners in pairs or groups in placing price tags on assorted goods from the classroom shop.
3. Discuss with learners the difference between goods and services.
4. Using the examples in the learner's book page 245, guide learners to discuss and relate money to goods and services up to sh. 1000.
5. Learners play digital games involving money. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions form pupils' book page 245

## MONEY

### Needs and Wants

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to differentiate between needs and wants.

**Suggested Learning Resources**

- Real objects
- A chart showing pictures of different items

**Key Inquiry Question**

What is the difference between needs and wants?

**Learning Activities**

1. Take Learners outside the classroom. In pairs or groups ask learners to list down the things that they can see in the neighborhood that they use in daily life.
2. Discuss with learners items from their list which they cannot do without and those that they desire but can do without.
3. Discuss with learners how to spend money on needs and wants according to priority.
4. Using the example in the learner's book page 246, guide learners to identify needs and wants.
5. Learners to play digital games involving money. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 246

## MONEY

### Spending and Saving Money

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to make decisions on spending and saving money in real life situations.

**Learning Resources**

- Kenyan currency coins and notes

**Key Inquiry Question**

What do you consider when you need to spend and save money?

**Suggested Learning Activities**

1. Learners in pairs or groups to discuss what they would do with a gift of sh.1000.
2. Ask learners to discuss in pairs what they would consider before spending money and how much to save.
3. Learners to share experiences in activity two (2) on spending and saving money with other groups.
4. Using the example in the learner's book page 247, guide learners through a discussion on spending and saving.
5. Learners to play digital games involving money. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 247

**General Learning Outcome**

By the end of this strand, the learners should be able to describe properties of geometrical shapes and spatial relationships in real life experiences.

## POSITION AND DIRECTION

**Time - 1 lesson**

**Background Information**

The learning of geometry starts with the learners modeling straight and curved lines. Position and direction is an important aspect in our day to day life hence the need to consider this in this sub strand. It is expected that the learners will be able to follow instructions on moving straight, turning right or left and even guide people to follow directions to get to a destination.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should involve learners in non-formal activities including arranging seats in straight lines in the classroom. The teacher may also discuss how the position and direction concept is linked to Movement and creative and Environmental activities. As a community service activity to support learning learners could assist in arranging seats in straight lines in community functions.

## POSITION AND DIRECTION

### Turning to the Right and to the Left from a Point

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to turn to the right and to the left from a point.

**Suggested Learning Resources**

- School compound

**Key Inquiry Question**

What do you do when you get to a road junction?

**Learning Activities**

1. Guide learners in pairs or groups to discuss the direction to take after reaching a road junction. Learners to write possible directions to take at a road junction.
2. The teacher to take learners for an outdoor activity involving turning right or left. Discuss safety precautions when performing the activity.
3. Using examples in the learner's book page 248, guide learners to turn right or left from a point in real life situations.
4. Learners to play digital games involving position and direction. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 248.

## SHAPES

**Time - 1 lesson**

**Background Information**

Learners start interacting with different shapes found at home and also in the environment before they come to school. In school they start learning about shapes through the sorting and grouping activities. Later they are able to identify different shapes and make patterns using them. The concept of making patterns is further developed in this sub strand and learners may pick it up and get involved in making patterns on cloths or belts, a business venture in their free time, later in life.

Learners are expected to work in pairs or groups in order to learn from each other which would lead to the development of core competencies. The teacher should bring out the various components in the curriculum designs. These components include but not limited to discussing issues like safety of materials being used (PCIs), values that can be nurtured for example unity, respect, patriotism and responsibility among others. The teacher should involve learners in non-formal activities including making patterns and sticking them on classroom walls for beauty. The teacher may also discuss how patterns are linked to Movement and Creative and Environmental activities. Learners could visit children's homes and beautify their walls with patterns drawn on paper as a way of community service learning.

## SHAPES

### Geometric Patterns

**Specific Lesson Learning Outcome**

By the end of the lesson, the learner should be able to make patterns using geometric shapes.

**Suggested Learning Resources**

Cutouts of rectangles, circles, triangles, ovals and squares

**Key Inquiry Question**

What shapes can you identify in your school?

**Learning Activities**

1. Learners in pairs to identify different shapes.
2. Learners to draw different shapes.
3. Learners in pairs to make patterns using different shapes.
4. Using the example in the learner's book page 249, guide learners to make patterns using different shapes.
5. Learners to play digital games involving shapes. The digital devices should have signed instructions.

**Work to do**

Learners to work out questions from the learner's book page 249.

## ANSWERS FOR TERM 3

### WEEK 1 LESSON 1

| | |
|---|---|
| Twelfth | 12 |
| Thirteenth | 13 |
| Fourteenth | 14 |
| Nineteenth | 19 |
| Fifteenth | 15 |
| Sixteenth | 16 |
| Seventeenth | 17 |
| Eighteenth | 18 |
| Twentieth | 20 |

Position of the balloons coloured red

$2^{nd}$ $4^{th}$ $6^{th}$ $8^{th}$ $12^{th}$ $14^{th}$

### WEEK 1 LESSON 2

16 - $16^{th}$

17 - $17^{th}$

18 - $18^{th}$

19 - $19^{th}$

20 - $20^{th}$

### WEEK 1 LESSON 3

1. 320, 330, 340
2. 320, 310, 300
3. 530, 520, 510
4. 810, 820, 830
5. 920, 930, 940

**WEEK 1 LESSON 4**

Work to do

| | | | | |
|---|---|---|---|---|
| 1. | 2 hundreds | 0 tens | 5 ones | |
| 2. | 9 hundreds | 8 tens | 3 ones | |
| 3. | 456 | | | |
| 4. | 7 thousands | 2 hundreds | 9 tens | 1 ones |
| 5. | 8 thousands | 4 hundreds | 5 tens | 7 ones |
| 6. | 1349 | | | |
| 7. | 5986 | | | |
| 8. | 3 thousands | 5 hundreds | 4 tens | 6 ones |
| 9. | 0 thousands | 5 hundreds | 2 tens | 1 ones |
| 10. | 1035 | | | |

**WEEK 1 LESSON 5**

→ A reading and signing lesson ←

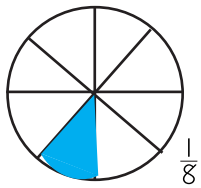
| **WEEK 2** | **LESSON 1** |
|---|---|
| Number | Words |
| 1. 66 | Sixty six |
| 2. 27 | **twenty seven** |
| 3. 58 | fifty eight |
| 4. 98 | **ninety eight** |
| 5. 19 | **nineteen** |
| 6. **59** | Fifty nine |
| 7. 99 | **ninety nine** |
| 8. **100** | One hundred |

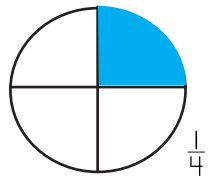
## WEEK 2 LESSON 2

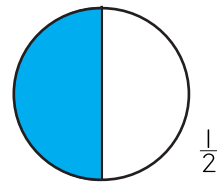
1. 26, 25, 24
2. 131, 132, 133
3. 438, 440, 442
4. 740, 730, 720
5. 780, 830 880
6. 213, 208, 203

## WEEK 2 LESSON 3

**1.**




**2.** a) a half is bigger than $\frac{1}{8}$

b) $\frac{1}{2}$ is bigger than $\frac{1}{4}$

c) $\frac{1}{4}$ is bigger than $\frac{1}{8}$

## WEEK 2 LESSON 4

Which fraction is bigger?

1. A half of 20
2. $\frac{1}{4}$ of 16
3. $\frac{1}{2}$ of 12
4. $\frac{1}{2}$ of 24
5. $\frac{1}{2}$ of 32

## WEEK 2 LESSON 5

1. 439
2. 249
3. 459

4. 659
5. 259
6. 628
7. 789
8. 929
9. 808 goats
10. 109 packets

**WEEK 3 LESSON 1**

1. 659
2. 268
3. 460
4. 648
5. 999
6. 986
7. 896
8. 794
9. 690
10. 197 bottles
11. 266 packets

**WEEK 3 LESSON 2**

1. 133
2. 222
3. 335
4. 490
5. 695
6. 722
7. 533
8. 681

9. 926
10. 990
11. 111 buttons
12. 174

**WEEK 3 LESSON 3**

1. 317
2. 419
3. 719
4. 745
5. 609
6. 839
7. 919
8. 316
9. 327
10. 266

**WEEK 3 LESSSON 4**

1. 15
2. 18
3. 17
4. 21
5. 24
6. 27
7. 13
8. 21
9. 21
10. 24

## WEEK 3 LESSSON 5

1. 798
2. 989
3. 997
4. 735
5. 997
6. 589
7. 998
8. 585
9. 988
10. 728

## WEEK 4 LESSON 1

1. 774
2. 491
3. 492
4. 519
5. 303
6. 693
7. 765
8. 419
9. 419
10. 749

## WEEK 4 LESSON 2

1. 320, 330, 340, 350, 360
2. 550, 650, 750, 850, 950
3. 630, 680, 730, 780, 830
4. 811, 816, 821, 826, 831
5. 460, 480, 500, 520, 540

**WEEK 4 LESSON 3**

1. 326
2. 244
3. 131
4. 426
5. 554
6. 971
7. 822
8. 617
9. 624
10. 112 Women

**WEEK 4 LESSON 4**

1. 63
2. 285
3. 297
4. 671
5. 381
6. 796
7. 851
8. 433
9. 283
10. 361

**WEEK 4 LESSON 5**

1. 286
2. 61
3. 482

4. 363
5. 395
6. 292
7. 185
8. 375
9. 163
10. 170

**WEEK 5 LESSON 1**

1. 160
2. 710
3. 120
4. 220
5. 710
6. 510
7. 120
8. 430
9. 530
10. 720 passengers

**WEEK 5 LESSON 2**

1. 285, 260
2. 400, 340
3. 150, 100
4. 350, 125
5. 610, 550
6. 250, 100
7. 200, 120

**WEEK 5 LESSON 3**

1. 32
2. 80
3. 50
4. 64
5. 27
6. 63
7. 72
8. 20
9. 18
10. 9

**WEEK 5 LESSON 4**

1.

| X | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 8 | **8** | **16** | **24** | 32 | **40** |
| 9 | **9** | 18 | **27** | **36** | **45** |
| 10 | **10** | **20** | **30** | **40** | 50 |

2. = 72
3. = 45
4. = 80
5. = 81

**WEEK 5 LESSON 5**

1. 90 apples
2. 40 litres of milk
3. 72 packets
4. 50 rows of cabbage
5. 32 windows

**WEEK 6 LESSON 1**

1. 8
2. 9
3. 9
4. 9
5. 9
6. 7
7. 6
8. 7
9. 8 eggs

**WEEK 6 LESSON 2**

1. sh 8
2. 8 oranges
3. 9 fish
4. 4 biscuits
5. 8 eggs
6. 7 bananas

**WEEK 6 LESSON 3**

1. 13 Metres
2. 20 metres
3. 810 metres

**WEEK 6 LESSON 4**

1. 20 metres
2. 29 metres
3. 290 metres
4. 130 metres
5. 240 metres

**WEEK 6 LESSON 5**

1. 22 kg
2. 53 kg
3. 69 kg
4. 186 kg
5. 45kg
6. 8kg
7. 47 kg
8. 22 kg

**WEEK 7 LESSON 1**

Containers Capacity in Litres

Bucket

Jerrican Ensure learners, measure the containers accurately, mark the correct answer

Sufuria

Basin

Jug

**WEEK 7 LESSON 2**

1. 34 Litres
2. 371 Litres
3. 344 Litres
4. 383 Litres
5. 372 Litres

**WEEK 7 LESSON 3**

| Container | Estimates in Litres | Actual Litres | Was the estimate accurate? |
|---|---|---|---|
| A | | | |
| B | | | |
| C | | | |
| D | | | |

Ensure that learners measure the actual Litres accurately, mark and give follow-up

**WEEK 7 LESSON 4**

1. 6 hours 39 minutes
2. 4 hours 49 minutes
3. 2 hours 35 minutes

**WEEK 7 LESSON 5**

1. 1 hour 32 minutes
2. 1 hour 5 minutes
3. 1 hour 1O minutes

**WEEK 8 LESSON 1**

| **Item** | **Good or Service** |
|---|---|
| Transport | - service |
| Cloth repair | - service |
| Book | - Good |
| Pencil | - good |
| School sweater | - good |
| Shoe Repair | - service |

**WEEK 8 LESSON 2**

| | Item | needs | Wants |
|---|---|---|---|
| a | Bicycle | | |
| b | Car | | |

| | | | |
|---|---|---|---|
| c | Chair | | |
| d | Table | | |
| e | Pencils | | |
| f | Duster | | |
| g | watch | | |
| h | Clothes | | |
| i | Toy | | |
| j | House | | |
| k | Book | | |
| l | Food | | |

N. B. The teacher should note that needs and wants are relative and should therefore mark above exercise with caution.

**WEEK 8 LESSON 3**

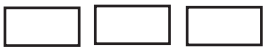
| | Shillings before spending | Spending in shillings | Savings in shillings |
|---|---|---|---|
| 1 | 500 | 300 | 200 |
| 2 | 1000 | 400 | 600 |
| 3 | 650 | 250 | 400 |
| 4 | 500 | 400 | 100 |
| 5 | 200 | 150 | 50 |
| 6 | 400 | 350 | 50 |
| 7 | 1000 | 700 | 300 |
| 8 | 700 | 300 | 400 |
| 9 | 800 | 500 | 300 |
| 10 | 900 | 400 | 500 |

**WEEK 8 LESSON 4**

1. Right
2. Right
3. Left
4. Straight
5. Left

**WEEK 8 LESSON 5**

Next Shape in Pattern

1. 

2. 

3. 

4. 

5. 

## Appendix 1

### Sample Scheme of Work

| SCHOOL | Grade | Learning area | Term | YEAR |
|---|---|---|---|---|
| | | | | |



LEARNING AREA.....

| Week | Lesson | Strand | Sub-strand | Specific learning outcome | Key inquiry Question. | Learning experiences | Learning resources | Assessment | Reflections |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |

**SAMPLE INDIVIDUALIZED EDUCATIONAL PROGRAMME (IEP)**

A.

(i) **Name of the child** ……..…… Date of Birth…….....…….…..…

School ……..…….. Grade…....…… Year…….....…..

Admission No. ……..…….....……...…..

Parent's Name…… Address …….....……

Phone No…… Email …….....……..……

Occupation …….....…….

**(ii) Background Information of the child**

……

IEP area of focus …….....……..…

…….....

**B. Present level of performance:**

**Summary of strengths and weaknesses**

**Strength**

(i) ……..……..……

(ii) ……..……..……

(iii) ……

(iv) ……

**Weaknesses**

(i) ……

(ii) ……

(iii) ……

(iv) ……

**Initial Recommendations**

……....……

……

**C. Learning Outcomes**

Long term learning outcome (Usually one)

(i) ……

(ii) ……

**Short term learning outcomes (can be more than one)**

(i) ……...……

(ii) ……...……

(iii) ……

**D. Learning experiences/activities**

……

……

**E. Evaluation modalities**

……

……

**Evaluation tool**

Interpretation (Analysis of the results)

……

……

By who……

**F. Team Members to involve**

(i) ……

(ii) ……

(iii) ……

(iv) ……

(v) ……

(vi) ……

**G. IEP Implementation**……

……

**H. Time frame**

Start Date ……End Date……

Review Date……

**I. Evaluation Report** ……

……

**J.** **→ Achievements**

(i) ……...……

(ii) ……..……

(iii) ……

**→Challenges**

(i) ……...……...……...……

(ii) ……...……...……...……

(iii) ……...……...……

**K.** **Conclusion and final recommendations**

.....

**Appendix 2**

**LESSON PLAN TEMPLATE**

| SCHOOL | GRADE | DATE | TIME | ROLL |
|---|---|---|---|---|
| | | | | |

**Strand** …….....…….……..…….....

**Sub-strand** …….....

**Specific Learning Outcome** .....

**Key Inquiry Question** .....

**Core competencies be developed** …….....…….....……..…

**PCIs** ……...…….....

**Values** ……..…….....

**Learning Resources**.....

**Organization of learning**.....

**Introduction** (Assessment for Learning) ……..…….....

.....

**Lesson development** (Assessment as Learning)

**Step**

1……...…….....……...…

2…….....……..……..……..……

3…….....……..……..……

**Conclusion** (Assessment of Learning)

……..…….....……...……..……

**Summary**…….....……

.....

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