Lenaneo la go Kaonafatša Thuto ya Dipalo Mphatong wa R

Grade R Mathematics Improvement Programme

Pukutlhahlo ya Mareo
Concept Guide

Sepedi | English

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The Grade R Mathematics and Language Improvement Project is an initiative of the **Gauteng Department of Education** and its key partner, the **Gauteng Education Development Trust**.

The development and production of the training and classroom resources for the Grade R Mathematics and Language Improvement Project were made possible by generous project funding from the **United States Agency for International Development** and the **Zenex Foundation**.

The Grade R Mathematics and Language Improvement Project is managed by **JET Education Services** with **UCT's Schools Development Unit** and **Wordworks** as technical partners.

The **Schools Development Unit** (SDU) at the **University of Cape Town** (UCT) is the mathematics technical partner to the Grade R Mathematics and Language Improvement Project. The SDU is a unit within UCT's School of Education that focuses on teachers' professional development in Mathematics, Science, Literacy/Language and Life Skills from Grade R to Grade 12. The SDU offers teacher qualifications and approved UCT short courses, school-based work, materials development and research to support teaching and learning in all South African contexts.

This edition of the mathematics materials has benefitted from collegial engagement with Wordworks colleagues and has been improved by their alignment with the materials of the Language Improvement Programme. It has been enriched by the work of officials of the Gauteng Department of Education's Early Childhood Development and Foundation Phase Curriculum Sub-Directorates at District and Provincial level who have made valuable contributions to the content of the materials and engaged constructively to ensure alignment with provincial policies, practices and values.

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- The Gauteng Department of Education Curriculum, Teacher Education and Special Education Directorate officials for their contribution to the adaptation of our materials.
- Colleagues from Wordworks, language technical partners on the Grade R Mathematics and Language Improvement Project, for collaborating on the materials development.
- The Western Cape Education Department (WCED) officials and teachers for their contribution to the successful implementation of the Grade R Mathematics Programme (*R-Maths*) in the Western Cape between 2016 and 2019.
- The *R-Maths* writing team: WCED Early Childhood Development officials, Cally Kuhne, Karen Kaimowitz, Bev Da Costa, Meryl Glaser, Sue Bailie, Sue Connolly, Sue Heese.

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Illustrations: Jiggs Snaddon-Wood
Typesetting: Jenny Wheeldon
Inside design: Magenta Media
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Lenaneokaonafatšo la Thuto ya Dipalo Mphatong wa R ke morero wa Kgoro ya Thuto ya Gauteng (**Gauteng Department of Education**) le badirišanimmogo ba bohlokwa ele go **Gauteng Education Development Trust**.

Tšweletšo le kgatišo ya tlhahlo le dithušathuto tša phapoši tša Lenaneokaonafatšo la Thuto ya Dipalo Mphatong wa R e kgontšhitšwe ke thušo ka mašeleng go tšwa go **United States Agency for International Development** le **Zenex Foundation**.

Lenaneokaonafatšo la Thuto ya Dipalo Mphatong wa R le laolwa ke **JET Education Services** gammogo le **Schools Development Unit** ya **UCT** le **Wordworks** bjalo ka badirišani ba sethekniki.

Schools Development Unit (SDU) kua **University of Cape Town** (UCT) ke badirišani ba sethekniki ba dipalo go Lenaneokaonafatšo la Thuto ya Dipalo Mphatong wa R. SDU ke uniti ya UCT ya School of Education yeo e hlokometšego tlhahlo le kgodišo ya dithuto tša Dipalo, Saense, Kitšo ya go ngwala le go bala/Polelo le Mabokgoni a Bophelo go tloga go Mphato wa R go fihla go wa 12. SDU e aba dithuto tša tlhahlo ya barutiši le mangwalo a UCT a dithuto tša kopana tša tlaleletšo, tlhahlo ya mošomo yeo e ka dirwago sekolong, bongwadi bja dipuku le go dira dinyakišišo tšeo di thekgago go ithuta le go ruta mabakeng a go fapana dikolong tša Afrika Borwa.

Kgatišo ye ya dipuku tša dipalo e kgonagetše ka lebaka la tšhomišano le bašomimmogo ba Wordworks bao ba kaonafaditšego le go e tswalanya le Lenaneokaonafatšo la Thuto ya Polelo. Kgatišo e kaonafaditšwe gape ke bašomi ba Kgoro ya Thuto ya Gauteng Thutotlhabollo ya Digotlane le Karolwana ya Kharikhulamo ya Legato la Motheo Seleteng le Profenseng, bao ba filego thušo tšweletšong ya dikarolothuto le go di tswalanya le pholisi, ditlwaelo le ditheo tša kgoro.

DITEBOGO

Di lebišwa go:

- Bašomi ba Kgoro ya Thuto ya Gauteng Lefapha la Lenanethuto, Tlhahlo ya Barutiši le bašomedi ba Lefapha la Thuto ya go Ikgetha, ka maele a bona phetagatšong ya setšweletšwa se sa rena.
- Bašomimmogo ba Wordworks, badirišani ba tša sethekniki ka malemeng, tšhomišano ya bona tšweletšong ya mošomo wo wa Lenaneokaonafatšo la Thuto ya Dipalo le Polelo Mphatong wa R.
- Bašomi ba Western Cape Education Department (WCED) le barutiši ka maele a bona tšweletšong le tsentšhotirišong ya Grade R Mathematics Programme (*R-Maths*) profenseng ya Kapa Bodikela magareng ga mengwaga ya 2016 le 2019.
- Sehlopha sa bangwadi ba *R-Maths*: WCED Ntšhetšopele Thutotlhabollo ya Digotlane, Cally Kuhne, Karen Kaimowitz, Bev Da Costa, Meryl Glaser, Sue Bailie, Sue Connolly le Sue Heese.

Balaodi ba dikgopolokakaretšo le dikgatišo: Cally Kuhne le Tholisa Matheza
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Mosepediši wa diphetolelo (Dipolelo tša Sesotho): Lorato Trok
Mofetoledi: Joyce Musi
Morulaganyi wa polelo ya Sepedi: Seakwana (Sahara Joe) Machoga
Barulaganyi ba Polelo ya Seisemane: Ilse von Zeuner le Kathleen Sutton
Diswantšho: Jiggs Snaddon-Wood
Peakanyo ya botlanyi: Jenny Wheeldon
Peakanyo ya ka gare ga puku: Magenta Media
Bokgabo bja khabara: Jacqui Botha

Contents

Diteng

Foreword from the Head of Department

GAUTENG
PROVINCIAL GOVERNMENT
REPUBLIC OF SOUTH AFRICA

GGT 2030
GROWING GAUTENG TOGETHER

Dear Teacher/Practitioner

Welcome to the training for the Grade R teachers/practitioners. The Gauteng Department of Education (GDE) has prioritised Early Childhood Development as its Strategic Goal 1. This is to ensure that we can lay a solid foundation and seamless transition of learners to Grade 1.

The Grade R Mathematics and Language Improvement Project has been developed to provide the much-needed classroom-based *support* for the Grade R teachers/practitioners in Gauteng. It is about classroom practices with exciting techniques and methodology most appropriate for Grade R teaching and learning. This is in response to a study that reported that 65% of children across South Africa have not mastered the skills required to be able to succeed in Literacy and Numeracy when entering Grade 1. This project is intended to support the Grade R teachers/practitioners to address this challenge.

The Department's expectation is that you are ready to learn and be a more empowered Grade R teacher/practitioner. Your commitment to the training process and thereafter the implementation of *lessons* learnt in *your* classroom, will contribute to the improvement of Grade R learner readiness for Grade 1.

We trust that this intervention will help enhance your potential, innovation and creativity as you lay an important foundation for learning for our children. This project would not have been possible without the support of our partners. The GDE is grateful for the support of the GEDT, Zenex Foundation and USAID who contributed to this initiative.

I trust you will learn a great deal from this training programme and improve the learning experience of the young children in your care.

Yours sincerely

Mr Edward Mosuwe
Head of Department: Gauteng Department of Education
3 June 2020

Selelekela ka Hlogo ya Kgoro ya Thuto Profenseng

Go Morutiši/Motlhahli

Ke a le amogela tlhahlong ya barutiši/batlhahli ba Mphato wa R. Kgoro ya Thuto Profenseng ya Gauteng (Gauteng Department of Education (GDE)) e hlaotše Thutotlhabologo ya Digotlane (ECD) bjalo ka Morero Tebanyo ya 1 ya kgoro. Se ke go netefatša go ala motheo wo o tiilego wa go ithuta Mphatong wa R gore barutwana ba kgone go fetela go Mphato wa 1 ntle le mathata.

Lenaneokaonafatšo la Thuto ya Dipalo Mphatong wa R le hlamilwe go *thekga* barutiši/batlhahli Profenseng ya Gauteng ka tlhahlo le mekgwa ya go ruta Mphato wa R. Lenaneo le hlohleletša mekgwa ya go ruta le go ithuta ya go thabiša yeo e šomišago ditsela tša maleba ka go ruta Mphato wa R. Se se dirwa go kaonafatša dithuto ka morago ga go lokollwa ga pego yeo e hlalošago go re 65% ya bana mo Afrika Borwa, ga ba na bokgoni bja maleba go kwešiša dithuto tša Polelo le Dipalo ge ba fihla Mphatong wa 1. Lebakalegolo la lenaneo le ke go hlahla barutiši/batlhahli ba Mphato wa R go efoga bothata bjo.

Maikemišetšo a kgoro ke gore barutiši/batlhahli ba Mphato wa R ba be komanamadulaabapile ba ikemišetše go ithuta le go ruta ka boitshepo ebile ba matlafetše. Maikemišetšo a gago bjalo ka morutiši/motlhahli *tlhahlong* ye a swanetše go go kgontšha phethagatšong ya morero wo, go thuša barutwana ba Mphato wa R go fihlelela maemo a makaone a go ya ka go Mphato wa 1.

Ke holofela gore maitapišo a a tla go thuša go kgonagatša, mpšhafatša le go hwetša ditsela tše kaone tša go ruta go aga motheo wa bana ba rena wa go ithuta. Kgoro ya Thuto e rata go leboga go menagane thekgo ya GEDT, Zenex Foundation le USAID. Lenaneo le be le ka se atlege ntle le thušo, thekgo le tirišano ya bona.

Ke holofela gore le tla ithuta go tletše seatla gomme tlhahlo ye ya le thuša go godiša thutotlhabologo ya bana bao ba lego ka tlase ga tlhokomelo ya lena.

Wa lena

Mr Edward Mosuwe

Hlogo ya Kgoro: Kgoro ya Thuto ya Gauteng

3 Phuphu 2020

SECTION 1

Grade R Mathematics Improvement Programme (Grade R Maths)

Introduction

Grade R Maths is an early maths programme for Grade R that is aligned to and extends the content of Grade R Mathematics in CAPS. The Grade R Maths programme:

- is designed to provide a framework for teaching and learning maths in Grade R
- is based on a set of teaching principles that encourage successful learning
- explains the concepts that are important for young children's maths development
- sequences Grade R maths content and gives practical ideas for the classroom
- gives teachers detailed guidance that supports their lesson planning.

The word 'maths' is used in different ways in this book. Here is how it is used and what each term means:

- **maths** is the body of knowledge called 'mathematics' that includes concepts, skills and applications
- **Grade R Mathematics** is the curriculum in the Curriculum and Assessment Policy Statement (CAPS)
- **Grade R Maths** is the name of this early maths programme for Grade R
- **maths in Grade R** is the kind of maths learning that takes place in Grade R.

In this guide, the word 'children' is used to talk about children before they enter Grade R. The word 'learner/s' is used to talk about children in Grade R.

Features of the *Concept Guide* include:

- information about teaching and learning maths
- **'In practice'** boxes that give examples of how the principles and ideas in this book could be used with or by learners
- **glossary** boxes that give the meaning of words that may be new or difficult to understand
- a glossary list of all the new words used in this book.

KAROLO YA 1

Lenaneo la go Kaonafatša Thuto ya Dipalo Mphatong wa R (*Grade R Maths*)

Matseno

Grade R Maths ke lenaneo la go kaonafatša thuto ya Mphato wa R le šetša le go thekga diteng tšeo di hwetšwago lenanethutong SEPHOLEKE. Lenaneo la *Grade R Maths* le:

- akantšwe go fa motheo wa go ruta le go ithuta dipalo Mphatong wa R
- theilwe godimo ga ntlhakemo ya go hlohleletša go ithuta ka katlego
- hlaloša mareo a bohlokwa ao a thušago barutwana go kwešiša thuto ya dipalo
- thuša go hlatholla tlhatlamano ya dipalo Mphatong wa R le go fa maele a go ruta le go laola phapoši
- fa barutiši tlhahlo yeo e akaretšago mekgwa ya go beakanya dithutwana.

Ka pukung ye lentšu le 'dipalo' le šomišitšwe ka mekgwa ya go fapana. Tšhomišo ya lona e akaretša:

- **dipalo** ke thuto yeo e akaretšago sebopego, diteng, tsebo, bokgoni le tirišo
- **Dipalo tša Mphato wa R** ke Setatamente sa Pholisi sa Leneneothuto le Kelo (SEPHOLEKE)
- ***Grade R Maths*** ke leina la lenaneo la thuto ya dipalo ya bana ba digotlane, Mphatong wa R
- **dipalo tša Mphato wa R** ke mokgwa wa go ithuta dipalo ka Mphatong wa R.

Ka pukutlhahlong ye, 'bana' e bolela ka bana pele ba thoma Mphatong wa R. Mola 'mo/barutwana' e le bao ba lego ka Mphatong wa R.

Tšeo di ikgethilego ka *Pukutlahlo ya Mareo*:

- tshedimošo ka mekgwa ya go ruta le go ithuta dipalo
- mapokisana a **'Go ikatiša'** a fa mehlala ya mešongwana ya tlaleletšo yeo e ka dirwago le barutwana goba ya dirwa ke barutwana ka bobona
- mapokisana a **tlhalošantšu** a fa go tlhalošo ya mantšu a maswa goba ao a sa tlwaelegago
- tlhalošantšu leo le bontšhago mantšu a maswa goba a go se tlwaelege.

Grade R Maths

There are four parts to Grade R Maths:

- the *Concept Guide*
- four *Activity Guides* – one for each school term – that provide Grade R teachers with weekly suggestions for teaching and learning maths
- a *Poster Book* with eleven posters
- a classroom *Resource Kit* with maths apparatus for individual and small group learning and teaching.

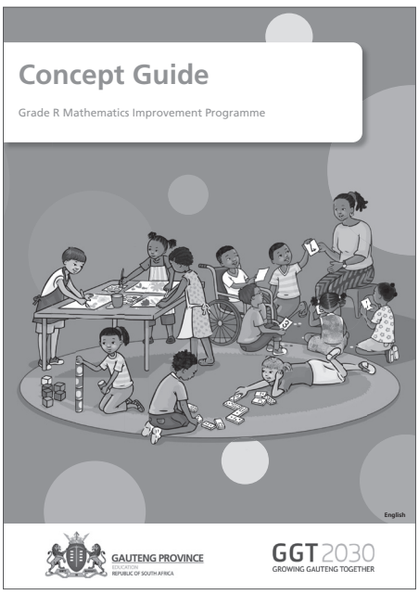


Figure 1 The *Concept Guide*

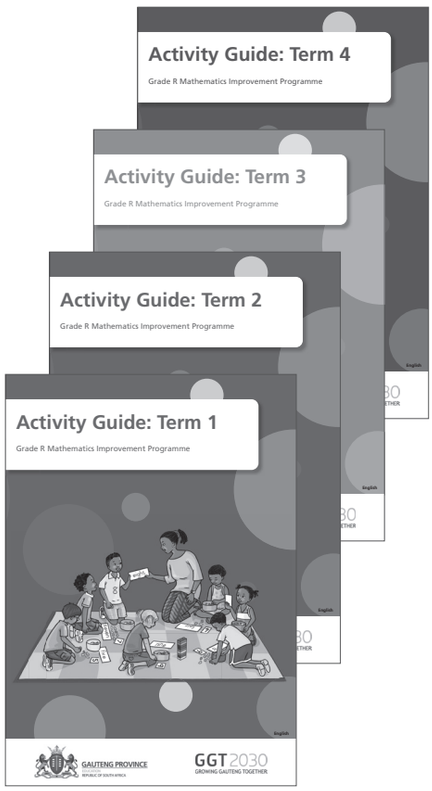


Figure 2 *Activity Guides* Term 1–4

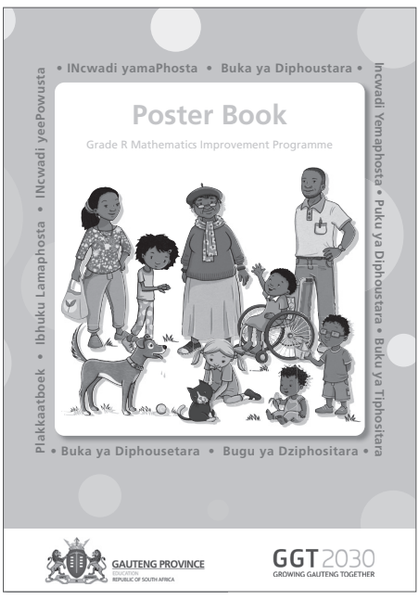


Figure 3 The *Poster Book*

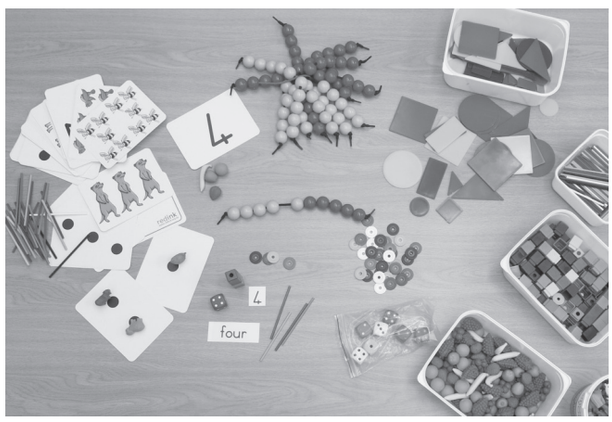


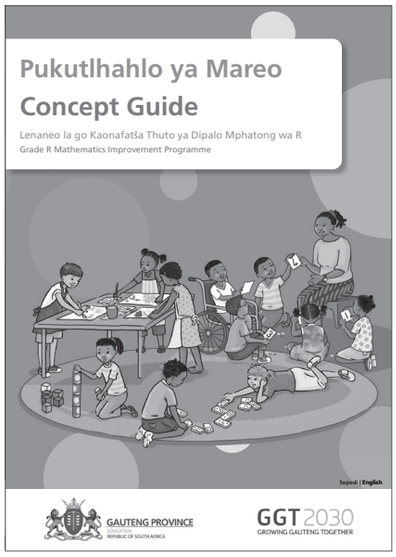
Figure 4 *Resource Kit*

You can find more information on each of the Grade R Maths components in this *Concept Guide*.

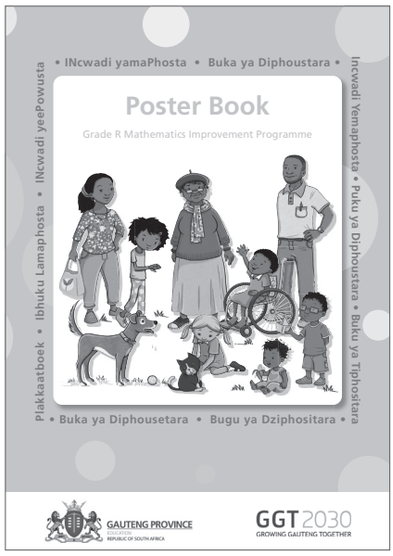
Grade R Maths

Thuto ya *Grade R Maths* e na le dikarolo tše nne e lego:

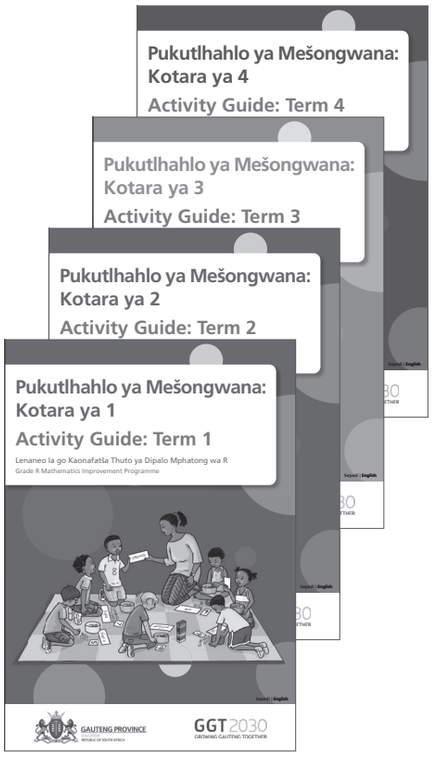
- *Pukutlhahlo ya Mareo*
- *Dipukutlhahlo tša Mešongwana* tše nne – kotara ye nngwe le ye nngwe e na le puku ya yona – tšona di thuša barutiši ba Mphato wa R ka tlhahlo ya beke ka beke ya go ruta le go ithuta dipalo
- *Puku ya Diphoustara* yeo e nago le diphoustara tše lesometee
- *Dithušathuto tša Phaposi* tšeo barutwana ba ka di šomišago ka noši goba ka dihlopha.



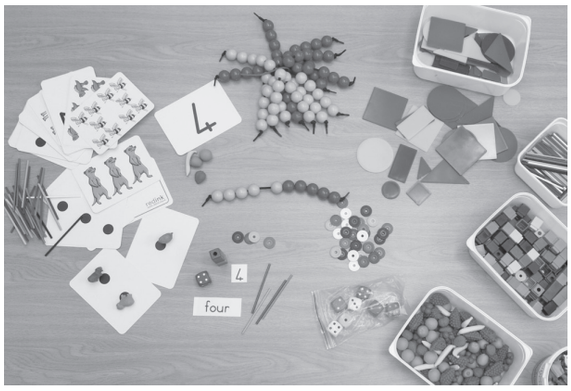
Seswantšho sa 1 *Pukutlhahlo ya Mareo*



Seswantšho sa 3 *Puku ya Diphoustara*



Seswantšho sa 2 *Dipukutlhahlo tša Mešongwana* Kotara ya 1–4



Seswantšho sa 4 *Dithušathuto tša Phaposi*

Tshedimošo ka botlalo ka dikarolo tša dipuku tša *Grade R Maths* e ka hwetšwa ka gare ga *Pukutlhahlo ya Mareo*.

The guiding principles of teaching maths in Grade R

Grade R Maths encourages an approach to teaching and learning that is stimulating and motivating for learners. Learners will develop the knowledge and skills that they will build on in later grades. Education research in classrooms has highlighted a set of teaching **principles**, which contribute to successful learning. The Grade R Maths programme is built on eight of these principles.

GLOSSARY

principle
a general rule that is accepted to be true

1. **The context principle.** Learning takes place in meaningful and appropriate situations.

8. **The practice principle.** Learning is consolidated through practising new skills and knowledge.

2. **The activity principle.** Learners should be directly involved in the learning–teaching process.

7. **The inclusivity principle.** Learning takes place in an environment where everyone is welcomed, included, treated fairly, respected and can participate.

THE EIGHT PRINCIPLES OF GRADE R MATHS

3. **The play principle.** Children learn best in free-play and guided-play activities.

6. **The guidance principle.** Learning takes place when teachers guide learners in developing new knowledge.

5. **The interaction principle.** Learning takes place when there is communication and sharing of ideas.

4. **The level principle.** Learners pass through various levels of understanding and development.

Figure 5 Principles of the Grade R Maths programme

Ditheo tša go ruta dipalo Mphatong wa R

Grade R Maths e hlohleletša mekgwa ye e fapanego ya go ruta le go ithuta ka go tliša kgatlhego go barutwana. Barutwana ba tla aga tsebo le bokgoni tšeo di tla tšwelago pele go gola mephatong ye e latelago. Dinyakišišo tša thuto di bontšha gore **ditheo tša go ruta** di thuša go ruta le go ithuta ka katlego. Lenaneo le la *Grade R Maths* le theilwe godimo ga ditheo tša go ithuta tšeo tše seswai.

TLHALOŠANTŠU

ditheo tša go ruta
melawanakakaretšo yeo go dumelelanwago gore ke nnete/kgonthe

1. **Setheo sa dikamano/ sebaka.** Go ithuta go kgatha tema sebakeng sa maleba sa mohola.

8. **Setheo sa itlwaetša.** Go ithuta go akaretša Go ikatiša ka mabokgoni le tsebo ye mpsha.

2. **Setheo sa mošongwana.** Barutwana ba kgathe tema mošomong wa go ruta le go ithuta.

7. **Setheo sa boakaretši.** Go ithuta go phethega ka tlase ga seemo sa go amogelana, akaretšana, lokologa, hlomphana gomme se hlohleletša go kgatha tema.

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DITHEO TŠE SESWAI TŠA GO ITHUTA *GRADE R MATHS*

3. **Setheo sa dipapadi.** Dipapadi tša go lokologa le tša go laolwa di thuša bana go ithuta.

6. **Setheo sa tlhahlo.** Thuto le tsebo e mpsha e phethagala ge barutiši ba hlahla barutwana.

5. **Setheo sa tswalano.** Dikamano le dipoledišano di thuša barutwana go ithuta.

4. **Setheo sa kgato ya maleba.** Barutwana ba ithuta ka dikgato le phihlelelo ya kgolo ya monagano le kwešišo.

Although these eight teaching principles are listed separately, they are all linked.

The next part of the *Concept Guide* takes you through the eight principles on which Grade R Maths is based. Each principle has:

- a definition
- an 'In practice' box
- more information about the principle.

1. The context principle

Definition

Learning takes place when a situation (or context) is meaningful to the learner. Very often, the best kinds of maths problems involve maths ideas that come from real-life situations. Learners find it easier to explore solutions to problems that they are able to relate to because of their life experiences.

In practice ...

There are opportunities for learning maths in almost all daily classroom and home activities. The challenge for teachers and parents is to be aware of these opportunities and to use them to build on what learners already know.

More about the context principle

Early maths at home

Young children's experiences at home and in outdoor play, lay the foundations for their understanding of important maths **concepts**.

Babies, toddlers and young children use their senses to learn about the world around them. They show an interest in basic shapes, create simple patterns and can learn to count before they come to school. They learn about the world as they talk, eat and play, while acquiring maths concepts at the same time. For example:

- When they try to fit things that are too big into their mouths, they are developing an understanding of size.
- When they use boxes and toilet roll inners to build imaginary cars, they are developing a sense of shape.
- When they try to lift an object that is too heavy to carry, they are beginning to understand the concept of mass.
- When they see similarities and differences between small collections of objects, they are matching, sorting and comparing.

Young children start to form ideas about maths concepts long before they are taught maths at school.

GLOSSARY

concept
an idea or thought. In other words, it cannot be touched. Maths concepts include number, counting, space, addition and subtraction.

Ditheo tše seswai tše le ge di tšwelela ka tatelano ka tsela yeo, di tloga di nyalelana.

Karolo ye e latelago ya *Pukutlhahlo ya Mareo* e bontšha ka botlalo ditheo tša go ithuta *Grade R Maths*. Setheo se sengwe le se sengwe se na le:

- tlhalošo
- lepokisana la mešongwana ya katišo ('Go ikatiša …')
- tsebo ya tlaleletšo ya setheo.

1. Setheo sa dikamano/sebaka

Tlhalošo

Go ithuta go phetagala ge morutwana a tswalana le sebaka se a lego go sona. Gantši, mathata a mabotse a dipalo a akaretša megopolo ya dipalo ye tšwang mo bophelong ka kakaretšo. Barutwana ba kgona go fihlelela ditharollo tša mathata ao a Dipalo ka lebelo ge bothata bo sepelelana le ao ba kopanago nao ka mehla.

Go ikatiša …

Go na le dibaka tša go ithuta dipalo ka mehla ka mešongwana ya ka phapošeng goba ya gae. Tlhotlo ke gore barutiši le batswadi ba lemoge dibaka tšeo gomme ba thuše go godiša tsebo yeo barutwana ba nago le yona.

Tsebo ya tlaleletšo ka setheo sa dikamano/sebaka

Dipalo tša motheo ka gae

Go kgatha tema ka gae le dipapading go thuša barutwana go aga motheo wa go kwešiša **mareo** a bohlokwa a thuto ya dipalo.

Bana ba banyenyane ba šomiša dikwi go ithuta lefase le dilo tšeo di ba dikanegitšego. Ba bontšha kgahlego dibopegong, ba itlhamela dipaterone ebile ba ka ithuta go bala/dipalo pele ba tsena sekolo. Ba ithuta ka lefase le bophelo ge ba bolela, ba e ja le ge ba bapala, gona ka nako yeo ba ithuta le dipalo. Go fa mohlala:

- Ge ba leka go lokela dilo tše kgolo ka molomong, ba thoma go kwešiša saese/bogolo bja selo.
- Ge ba šomiša mapokisi goba matata go dira dikoloi ba ithuta dibopego.
- Ge ba leka go kuka dilo tše boima, ba thoma go kwešiša bontši le boima.
- Ge ba bona diphapano le ditshwano tša dilo ba ithuta go tswalanya, go aroganya le go bapetša.

Se se bontšha gore bana ba thoma go aga dikgopolo ka dipalo pele ba thoma sekolo.

TLHALOŠANTŠU

mareo
kgopolo. Ka mantšu a mangwe, ke selo seo re sa kgonego go se swara. Dikgopolo tša dipalo di akaretša nomoro, palo, sebaka/sekgoba, go hlakanya le go ntšha.

The everyday activities of children at home are full of opportunities for early maths. For example:

- during daily routines, e.g. mealtimes, washing, getting dressed and putting things away
- when they use objects, e.g. putting lids onto plastic tubs and cutting with scissors
- as they play, e.g. when they share things, pretend to cook or pretend to drive a taxi
- when they draw and paint
- when they imitate adults counting.

These activities build children's self-confidence. At the same time, they develop their knowledge and understanding of the world around them.

Figure 6 Using daily activities to explore maths concepts

Young children's understanding of maths develops over time.

- They learn that numbers have an amount or quantity attached to them that does not change, e.g. when a three-year-old holds up three fingers to show the quantity 'three'.
- They may repeat a series of numbers, e.g. 'one, two, three, six, ten'. When they do this they are copying adults by using counting words without having a deeper understanding of what they mean.

As children play on their own and with other children, and as they **interact** with the adults around them, they start to develop ideas about the concepts of number, shape, space and measurement.

The concepts that children develop at home during their daily activities are sometimes called their 'everyday knowledge'. An example of this is when children put out enough bowls for everyone eating a meal and then put out one spoon per bowl. As they do this, they are learning about one-to-one matching.

GLOSSARY

interact
communicate with other people; do activities with other people

Mešongwana yeo bana ba e dirago ka gae e tletše ka thuto ya go aga bokgoni bja go ithuta dipalo. Go fa mohlala:

- ka mehla ka nako ya mešongwana, mohl. nako ya dijo, go hlapa, go apara le go phutha
- ge ba šomiša didiriswa, mohl. go khurumela le go sega
- ge ba bapala, mohl. ge ba abelana dilo, ba dira mantlwane (mepepeišo) ka go apea goba wa go otlela koloi (ditheksi)
- ge ba thala/dira tša botaki goba ba penta
- ge ba ekiša batho ba bagolo ge ba dira dipalo goba ba bala.

Mešongwana ye e aga boitshepo bja bana. Ebile e aga tsebo le kwešišo ya bophelo le lefase leo ba lego go lona.

Seswantšho sa 6 Kelo ya mešongwana ya ka mehla e ruta mareo a dipalo

Tsebo le kwešišo ya thuto ya dipalo e gola ge ntše ba bana ba gola.

- Ba ithuta gore dinomoro di na le kelo gomme ga di fetoge, mohl. ge ngwana wa mengwaga ye meraro a bontšha 'tharo' ka menwana ye meraro.
- Ba boeletša dinomoro, mohl. 'tee, pedi, tharo, tshela, lesome'. Ba dira se go etša batho ba bagolo ntle le go kwešiša gore dinomoro di bolela eng.

Bana ge ba bapala ba nnoši goba le bagwera ba a **amana** gape le batho ba bagolo bao ba lego kgaufsi, ebile ba thoma go hlama dikgopolo ka dinomoro, dibopego, sekgoba le kelo.

Dilo tšeo bana ba ithutago tšona gae ka nako ya mešongwana ya letšatši di bitšwa 'tsebo ya ka mehla'. Go fa mohlala, ge ngwana a kgona go ntšha dikomiki tša go lekana ebile a lokela le mahwana a go lekana. Ge ba dira se ba ithuta go lekanya dilo ka se tee ka se tee.

TLHALOŠANTŠU

go amana
go kgokagana/ tswalana le batho ba bangwe; gomme la dira dilo mmogo

Maths in the school context

Many people think maths is just about numbers and doing sums, but this is just one part of maths, called arithmetic. Maths actually includes many different concepts and skills. It also includes different ways of using these concepts and skills. These are called '**applications**'. So when we talk about maths we mean maths concepts, skills and applications.

Children use maths concepts every day even if they don't think of it as doing maths. They apply maths concepts when they fill a cup without it overflowing, know which container to use to fit in all the blocks, go shopping or say how many of something we have.

GLOSSARY

applications
different ways of using maths concepts and skills, e.g. checking your change in a shop, counting out your taxi fare, or dividing a packet of peanuts between three friends

Figure 7 We all use maths concepts in our daily lives – choosing the right size box.

At school, children build on this knowledge when, for example, they sort objects into groups and then compare the number of objects in each group. Then they learn to count using the correct sequence of numbers and use one-to-one correspondence to find the total number in a collection. This is called 'school knowledge'.

Everyday knowledge
comparing, sorting, matching, saying number names, learning about more/less, bigger/smaller, light/heavy

School knowledge
Symbols and words

Numbers, Operations and Relationships

Patterns, Functions and Algebra

Space and Shape (Geometry)

Measurement

Data Handling

Figure 8 The link between everyday knowledge and school knowledge

Dipalo sekolong

Batho ba bantši ba gopola gore dipalo ke dinomoro, go hlakanya le go ntšha, efela tše ke karolo e tee ya dipalo yeo e tsebegago ka la thutapalo. Dipalo di akaretša mareo le mabokgoni a go fapana, go akaretša teori, mabokgoni le tirišo. Go akaretša gape le ditsela tše di fapanego tša go kgona go šomiša mareo le mabokgoni ao. Tše di bišwa '**tirišo**'. Ka go dira bjalo ge re bolela ka dipalo re šupa mareo, mabokgoni le tirišo.

Bana ba šomiša mareo a dipalo ka mehla maphelong a bona ntle le go lemoga gore ke dipalo. Ba šomiša lereo la dipalo la tekolo ge ba tšhela meetse ka komiking ntle le go tšholla, ba tseba gore dipoloko dife di tsena lepokising le fe, ge ba ya mabenkeleng gomme ba tseba gore go rekilwe dilo tše kae.

TLHALOŠANTŠU

tirišo
mekgwa yeo e fapanego ya tirišo ya mareo a mabokgoni a dipalo, mohl. go bala mašaledi a tšheledi ge o fetša go reka ka lebenkeleng, go bala tšhelete ya go lefa theksi goba go abaganya malekere magareng ga bana ba bararo

Seswantšho sa 7 Re šomiša dipalo ka mehla bophelong – go kgetha lepokisana la bogolo bja maleba.

Sekolong, barutwana ba tlaleletša seo ba ithutilego sona gae, mohl. ithuta ba hlaola dilo ka dihlopha gore ba bapetša palo ya dilo tšeo. Ba ithuta go bala tatelano ya dinomoro ba šomiša tatelano ya tee ka tee go hwetša palomoka. Se ke 'tsebo ya sekolong'.

Tsebo ya ka mehla
bapetša, hlaola, swantšha, go bolela leina la nomoro, go ithuta ka bontši le bonnyane, bogolo le bonnyane, bofefo le boima

Tsebo ya sekolong
Maswao le maina

Dinomoro, Tirišo le Tswalano ('Dinomoro, Diphareišene le Ditswalano')

Dipatrone, Difankšene le Altšebra

Sekgoba le Sebopego (Tšeometri)

Kelo

Tšhomišo ya Tshedimošo ('Tšhomišo ya Data')

Seswantšho sa 8 Tlemagano magareng ga tsebo ya ka mehla le tsebo ya sekolong

When children arrive in Grade R, they come with their experiences as well as their understanding and ideas about the world. This is their everyday knowledge. Everyday knowledge will not be the same for all children as it depends on the child's family, community and culture. Everyday knowledge is sometimes called **prior knowledge** and teachers use it to build on what learners already know and can do.

GLOSSARY

prior knowledge
what learners know from before and can already do

In Grade R, learners should have the chance to explore, investigate and experiment with new ideas. They should also be encouraged to talk with their teacher and other learners about what they are doing and thinking. Learners need the right kind of teaching to help them:

- think and talk about their experiences using maths language
- build new maths knowledge
- deepen their understanding of maths
- develop a positive attitude to maths.

They need to engage in activities at home and at school that allow them to explore maths concepts, and to see maths as fun and enjoyable.

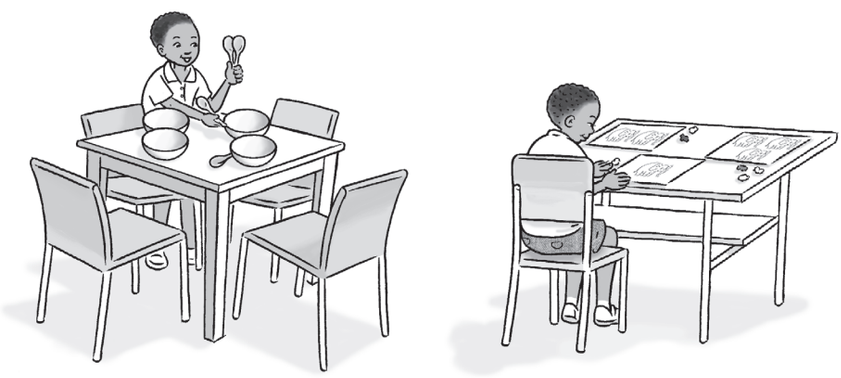


Figure 9 Counting and one-to-one matching at home and at school

Creating a maths learning environment

Teachers should create a classroom environment in which learners:

- feel safe and secure
- are confident enough to express themselves
- participate in all activities.

The physical environment for maths learning should include:

- resources (such as games, construction materials and puzzles) that are organised so that learners can see what is available and choose what they need to use
- opportunities to explore and investigate
- opportunities for learners to use materials to solve problems and record their solutions
- opportunities for learners to use maths language, like 'more', 'bigger than', 'corner' and also numbers

Bana ge ba fihla Mphatong wa R, ba tla ka dikgopolo, boitemogelo le kwešišo ya tšeo di diregago lefaseng. Se se bolela gore ba tla ka tsebo ya ka mehla. Tsebo ya ka mehla e tla fapana go ya ka maitemogelo a morutwana go ya ka lapa, setšhaba le setšo seo a tšwago go sona. Tsebo ya ka mehla ka nako ye nngwe e bitšwa **tsebo ya motheo** gomme barutiši ba swanetše go e diriša bjalo ka motheo wa thuto.

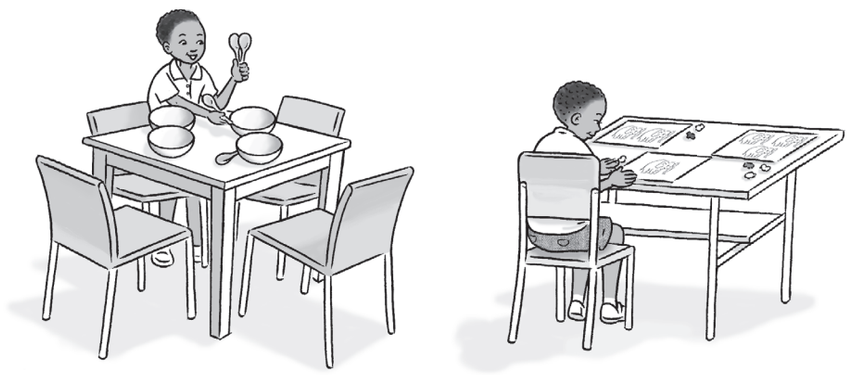
TLHALOŠANTŠU

tsebo ya motheo
seo barutwana ba se tsebego pele ba tsena sekolo

Mphatong wa R barutwana ba swanetše go nyakišiša le go utulla dikgopolo tše di mpsha. Ba swanetše go hlohleletšwa go bolela le barutiši le barutwana ba bangwe ka tšeo ba di dirago goba ba di gopolago. Barutwana ba nyaka thuto ya maleba yeo e tla ba thušago go:

- nagana le go bolela ka maitemogelo a bona ba šomiša polelo ya dipalo
- aga tsebo ye mpsha ya dipalo
- tibiša kwešišo ya bona ya dipalo
- aga kgahlego go thuto ya dipalo.

Barutwana ba swanetše go dira mešongwana ge ba le gae le ge ba le sekolong gobane e tla ba thuša go kwešiša mareo gomme ba tla rata le go thabela thuto ya dipalo.



Seswantšho sa 9 Go bala palo le go bapetša tee-ka-tee gae le sekolong

Go hlola tikologo ya go ithuta dipalo

Barutiši ba swanetše go dira phaphoši ya go rutela mo barutwana ba:

- ikwago ba bolokegile le go lokologa
- bago le boitshepo le go tšweletša bobona
- kgathago tema mešongwanang ka moka.

Tikologo ya go ithuta dipalo e swanetše go:

- ba le dithušathuto (bjalo ka dibapadiši, dithalokiša tša kago le mararankodi) tšeo di swanetše go beakanywa ka lenaneo gore barutwana ba kgone go di bona, go di kgetha le go di šomiša
- fa barutwana sebaka sa go nyakišisa le go utolla
- fa barutwana sebaka go somiša didirišwa go rarolla mathata a dipalo le go hwetša dikarabo
- fa barutwana sebaka sa go somiša polelo ya dipalo, bjalo ka ‘kudu’, ‘kgolo go’, ‘khutlo’ le dinomoro

- activities that involve **observing**, **matching**, **comparing**, **sorting** and **ordering**.

In practice ...

- Set up a maths-rich area in your classroom. Use a table against a wall so that labels, pictures and objects can be displayed and discussed.
- Arrange the weather chart, calendar, number line (number washing line) and number friezes in this area and use these for daily discussions.
- Display the learners' work in this area.
- Encourage the learners to bring items from home for discussion. Add these to the display table and give the learners who brought them an opportunity to talk about them.

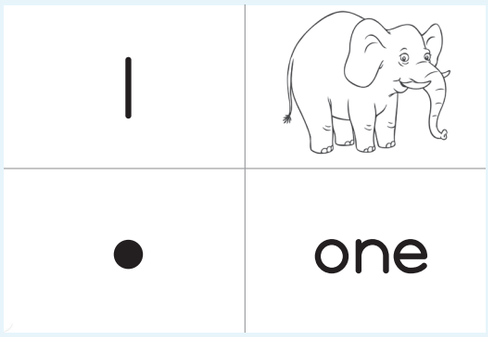


Figure 10 Number frieze

Figure 11 The maths area

2. The activity principle

Definition

The activity principle means learning by doing things yourself. Learners should be actively involved in their own learning. Learning maths in Grade R should consist of enjoyable, hands-on activities that involve everyday objects and meaningful experiences. Wherever possible the activities should provide learners with the opportunities to use their whole bodies and their senses, especially sight, hearing and touch.

GLOSSARY

observing
using our senses to find out about objects, events and attitudes. We need to observe to gather information about the world, e.g. looking and listening carefully to what is happening around us.

matching
identifying the same attribute in two or more objects, e.g. all the yellow objects. Matching is an important skill for learning one-to-one correspondence.

comparing
looking for similarities and differences between two or more objects, e.g. 'these are both animals, but one of them is blue and the other one is red'. Comparing is about finding the relationship between objects based on specific features. This skill leads to the ability to classify objects.

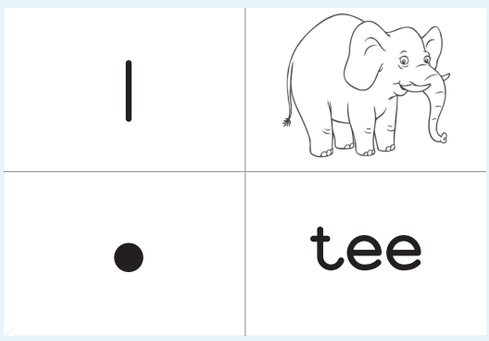
sorting
finding things that are the same, or alike, and grouping them by specific features. First sort by one feature, such as colour, e.g. 'all the green shapes'. Then sort by two features, such as colour and size, e.g. 'all the small, green shapes'.

ordering
lining up three or more objects or events in a sequence, e.g. the daily classroom routine, the learners' morning routine ('after I wake up I get out of bed, wash my face, eat my breakfast …') or the events in a story

- mešongwana ya go akaretša **hlokomela**, **tswalanya**, **bapetša**, **hlaola** le go **beakanya**.

Go ikatiša ...

- Hlola sebaka seo se humilego ka thuto ya dipalo. Morutiši a ka šomiša tafola go bea dišupo, diswantšho goba dilo tšeo bana ba tlilego go bolela le go ithuta ka tšona.
- Beakanya tšhate ya tša boso, khalentara, tšhupamabaka (mothalopalo) goba tšhate ya tlotlontšu le dinomoro go kgonthišiša gore le bolela ka tšona ka mehla.
- Beakanya mešongwana ya barutwana sebakeng seo.
- Hlohletša barutwana go tla le dilo tšeo le ka bolelago ka tšona. Bea dilo tšeo sebakeng seo gore le kgone go bolela ka tšona.



Seswantšho sa 10 Tšhate ya dinomoro

Seswantšho sa 11 Sebaka sa dipalo

2. Setheo sa mošongwana

Tlhalošo

Setheo sa mošomo se bolela ka mošomo woo barutwana ba o dirago ka bobona. Barutwana ba swanetše go ba bakgathatema thutong ya bona. Go ithuta dipalo Mphatong wa R go swanetše go thabiša, go akaretše go dira mešongwana ya ka mehla ka dilo tšeo di nago le mohola bophelong. Ge go kgonega mešongwana yeo e swanetše go fa barutwana sebaka sa go šomiša mebele ya bona go akaretša le dikwi kudu go bona, go kwa le go kgoma.

TLHALOŠANTŠU

go hlokomela
šomiša dikwi go hwetša dilo, ditiragalo le dikarabo. Bana ba swanetše go hlokomela dilo gore ba kgone go hwetša tshedimošo ka lefase leo ba phelago go lona, mohl. go lebelela le go theeletša dilo tšeo di diregago.

tswalanya
lemoga dilo tša go swana, mohl. dilwana tše serolwana.
Go tswalanya ke mabokgoni a bohlokwa ge ba ithuta ka botee.

bapetša
lemoga dilo tša go swana le tša go fapana magareng ga dilo tše pedi goba go feta, mohl. 'bobedi ke diphoofolo, ye nngwe ke ye sorolwana mola ye nngwe e le ye khubedu'. Go bapetša le go bontšha tswalano magareng ga dilo go ya ka sebopego. Go bapetša go ruta bokgoni bja go hlopholla.

hlaola
go hwetša dilo tša go swana, gomme tša hlophollwa ka sebopego. Ba ka thoma ka go hlokomela semelo se tee, bjale ka mmala, mohl. 'dibopego tsohle tse tala'. Bjalo di hlopholle ka dibopego tše pedi bjale ka mmala le bogolo, mohl. 'dibopego tsohle tše nnyane, dibopego tše tala'.

beakanya
go bea dilo goba ditiragalo ka tatelano, mohl. lenaneo la tšatši ka tšatši la ditiragalo tša phaposi, lenaneo la dilo tšeo barutwana ba swanetšego go di dira ka letšatši ('go tsoga, go hlapa meno le mmele, go ja difihlolo …') goba tatelano ya kanegelo

Grade R learners should learn to count and order numbers through songs and rhymes, using actions and big movements, such as clapping, jumping and stomping to represent numbers as they count. Rote counting, copying numbers from the board and writing number symbols between lines with a pencil are not the best way to learn about numbers.

Learners should physically look for and pack out collections of objects that they can count and label with number word and symbol cards. They should write number symbols in the sand, form them using Plasticine, paint them, or trace them on their friend's back. This approach is aligned with emergent writing and links the formation of the number symbol with the number name.

When introducing a new number, it is a good idea to connect the number name, symbol, physical actions and collections of objects through a story. This can be done by encouraging learners to count objects in a picture, or to recall the number of things in a story, or they can clap, jump or show their fingers to represent the number in a story.

In practice ...

The teacher does the following:

- Plans hands-on activities that are suitable for the learners' ages, levels of development and their interests.
- Makes connections between what the learners already know and can do, and the new ideas, language, concepts and/or skills that are to be learnt.

The learners:

- are free to experiment, investigate and ask questions
- together, share ideas and ask questions.

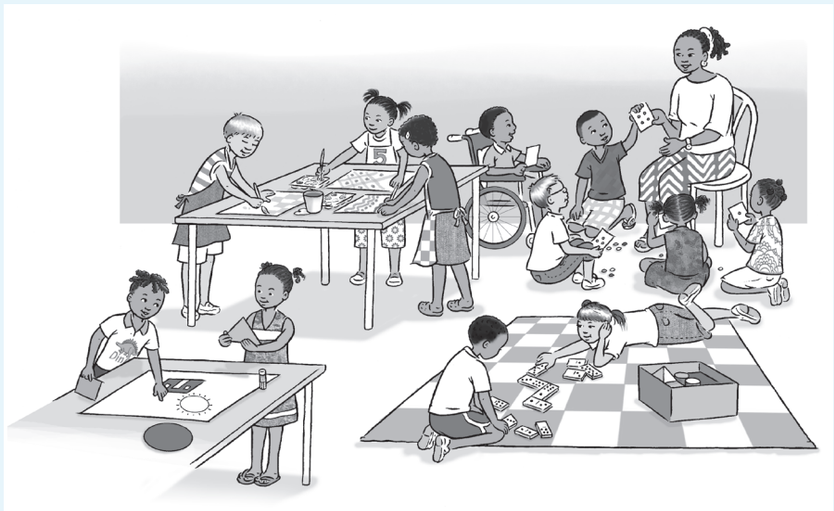


Figure 12 Children learn in hands-on activities.

Barutwana ba Mphato wa R ba swanetše go ithuta go bala le go beakanya dinomoro ka dikoša le morethetho ka go bina, go phaphatha diatla le go fofafofa ge ba le gare ba bala dinomoro. Go bala dinomoro leboelela, go ngwallolla dinomoro tšeo di ngwadilwego letlapeng ka phensele ga se mekgwa ye mebotse ya go ruta dinomoro.

Barutwana ba swanetše go nyaka le go šomiša dilo tšeo ba tlago di bala goba go bolela ka maina a dinomoro goba ba di lebanya le dikarata tša lentšupalo. Barutwana ba swantše go kgona go ngwala nomoro santaeng, moyeng, mmeleng wa morutwana o mongwe le go di penta. Mokgwa woo o ba thuša le ka go ngwala gomme o tswalanya nomoro le leina la yona.

Ge o ruta nomoro ye mpsha, go bohlokwa go tswalanya leinapalo, sekapalo, le dilo tša mmele le kgoboketšo ya dilo ka kanegelo. Se se ka etšwa go kgothaletša barutwana go bala dilo tšeo di lego sešwantshong, goba go gopola palo ya dilo tšeo di le go kanegelong, goba ba ka phaphatha, ba fofafofa goba bontšha menwana ya bona go emela nomoro kanegelong.

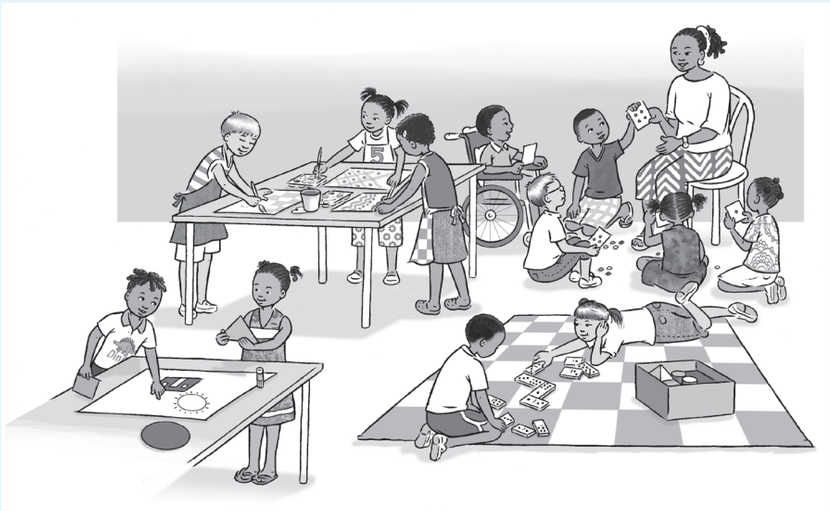
Go ikatiša ...

Morutiši a ka dira tše latelago:

- Beakanya mešongwana ya go šongwa ka diatla yeo e ka hlatlhago barutwana go šeditšwe mengwaga ya bona, kgolo ya monagano gammogo le kgahlego ya bona.
- Tswalanya thuto ye mphsa, polelo le bokgoni le tšeo barutwana ba šetšego ba di tsebago ebile ba kgonago go di dira, polelo, mareo gammogo le/goba mabokgoni ao ba swanetšego go a fihlelela.

Barutwana:

- ba lokologe go leka, nyakišiša le go b otšiša dipotšišo
- ba šoma mmogo, abelana dikgopolo le go botšiša dipotšišo.



Seswantšho sa 12 Barutwana ba ithuta ka go dira mešongwana ka diatla tša bona.

3. The play principle

Definition

Play consists of activities that are enjoyable and that promote a child's growth and development. Play has behavioural, social, physical, cognitive and emotional rewards. Play allows learners to be actively involved in their own learning and exploration of their environment. Learning in Grade R should consist of enjoyable, hands-on activities and experiences that make use of many concrete objects and **symbols**.

GLOSSARY

symbols
things that represent or stand for something else, such as a number symbol, logo or road sign

Learning through play

For children, learning and play are not separate activities. Play can mean many things, such as outdoor physical activities; playing with sand or water; pretend play with friends or alone; playing with blocks and construction toys; or playing listening games, guessing games or card games. Although some play activities need extra time and resources, children often enjoy playing with everyday objects and simple home-made materials. Play is how children learn at home and at school. It is not something that learners do only in their 'free time' or when a teacher is not around.

Learners need many opportunities to:

- explore their environment using their senses, e.g. physical activities done outdoors, such as climbing and running, or games with rules that have to be followed, such as hopscotch and ball games
- investigate and solve problems, e.g. using construction materials to make a tower, or using water or sand to fill containers
- practise what they already know or can do, e.g. playing structured games, such as snakes and ladders or dominoes.

Five types of play

Researchers have identified five types of play that can be seen in all cultures and that support the physical, social, emotional and cognitive development of a child.

- **Physical play** includes active exercise, fine motor practice and rough-and-tumble play. It is important for gross and fine motor coordination and for building strength and endurance.
- **Play with objects** includes exploring, investigating and experimenting with different obejcts in their world. This develops their thinking and problem-solving skills.
- **Symbolic play** is when children use a toy, object, picture, drawing or other mark-making to represent real-life objects.
- **Pretence and socio-dramatic play** involves dressing-up and role-playing. This promotes cognitive and social development and helps children to manage their own behaviour and thinking.
- **Games with rules** encourage children to follow the rules of a game, and to learn to share and take turns as well as help one another.

3. Setheo sa dipapadi

Tlhalošo

Go bapala dipapadi tša go thabiša go thuša bana go ithuta, go gola le go godiša dikgopolo. Dipapadi/go bapala go godiša kagišano, kgopolo le maikutlo a barutwana. Go bapala go ba go dumelela go ithuta ka noši le go kwešiša tikologo yeo ba le go go yona. Go ithuta Mphatong wa R go swanetše go thabiša, go akaretše go dira mešongwana ya diatla le go šomiša dilo tša go fapana bjalo ka **maswao**.

TLHALOŠANTŠU

maswao
dilo tšeo di emago legatong la se sengwe bjalo ka leswao la nomoro goba leswao la tsela

Go ithuta ka dipapadi

Mo baneng go bapala le go ithuta ke selo se tee. Go bapala go akaretša dilo tše mmalwa bjalo ka go bapala ka ntle; go itšhidulla; go bapala ka mabu le meetse (maraga); go bapala mantlwane le go bapala ka noši; go bapala ka dipoloko tša go aga; go theeletša dipapadi le go bapala dikarata goba go bapala papadi tša go akanya. Dipapadi tše dingwe di nyaka nako le dibapadišwa le ge go le bjalo bana ba rata dipapadi ka moka le tšeo di bapalwago ka ditlabelo tša maitirelo. Barutwana ba ithuta ka go bapala gae le sekolong. Ga ba bapale 'feela' ka nako ya go ikhutša goba ge morutiši a se go.

Barutwana ba nyaka menyetla ya go:

- nyakišiša tikologo ka go šomiša dikwi, mohl. go itshidulla go etswang ka ntle bjalo ka go namela le go kitima, goba dipapadi tša go ba le melao bjalo sekotšhe le dipapadi tsa kgwele
- nyakišiša le go hwetša dikarabo, mohl. go šomiša dipoloko tša go aga go aga se sengwe goba go šomiša meetse le mabu go tlatša kgamelo
- ikatiša go dira seo ba se tsebago, mohl. go bapala dipapadi tša go ba le melao bjalo ka papadi ya llere le dinoga goba ditomino.

Mehuta ye mehlano ya dipapadi

Ditsebi di utullotše mehuta ye mehlano ya dipapadi yeo e hwetšwago ditšong ka moka gomme e thekga go gola ga bana yona e akaretša go itšhidulla, go agišana, maikutlo le go nagana.

- **Boitšhidillo** go akaretša go itšhidulla, tshepetšo ya maleba ya matsogo le mahlo le go bapala ga go hloka lebaka bjalo ka go gogana le go kgorometšana. Tshepetšo ya matsogo le mahlo e bohlokwa gobane e aga bana ba go ba le maatla le kgotlelelo.
- **Papadi ka didirišwa** e akaretša go utulla, go nyakišiša le go leka dilo tša go fapana. Thaloko tša mohuta woo di ruta mabokgoni a go rarolla mathata.
- **Papadi ya kemela-nnete** ke ge bana ba šomiša dibapadišwa, dipopi, diswantšho, dithalwa go emela dilo tša nnete.
- **Mantlwane** o akaretša go apara diaparo tša batho ba bagolo goba tša bong bja go fapana. Thaloko tša mohuta woo di thuša go aga maitshwaro le mekgwa ya bana.
- **Dipapadi tša melao** di ruta bana go latela melao ya papadi, go abelana, go šielana le go thušana.

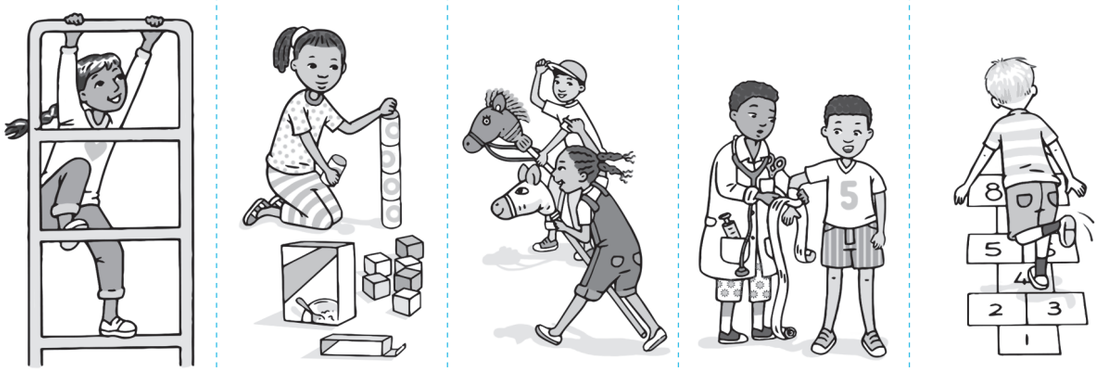


Figure 13 Types of play

The play-based approach

The play-based approach to teaching and learning recognises that at times children learn best from free-play activities which are initiated and directed by the child without adult involvement. At other times learners learn best from guided-play activities that are directed by the teacher for the whole class or small groups. A well-planned teaching and learning programme should include a balance of all the different types of play activities.

Learning maths concepts through play

Play often involves children taking on adult roles. For example, they might imitate adults preparing food, or a pilot flying an airplane, or a teacher teaching a class. In these games, they often use objects in their environment and pretend that they are other things, e.g. a wooden construction block 'becomes' a chopping board for chopping vegetables. In this kind of play, children use one object to 'stand for' or represent another one.

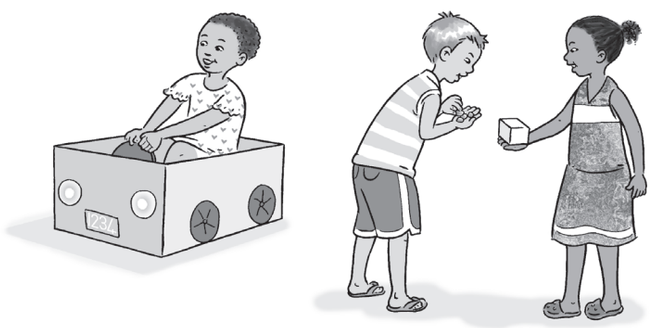
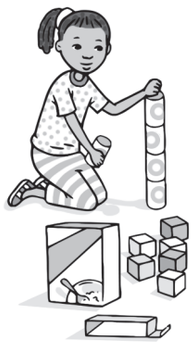


Figure 14 A cardboard box can represent a car, a wooden block can represent an apple and stones can represent money.

When children play and draw they use objects and pictures to represent real-life things. This is the beginning of learning that symbols can represent real things. They learn:

- that a drawing of two people can represent two real people.
- that symbols can represent other things, e.g. '2' stands for two things and this can be two of anything.

Boitšhidillo



Papadi ka didirišwa

Papadi ya kemela-nnete

Mantlwane

Dipapadi tša melao

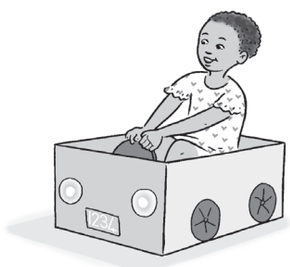
Seswantšho sa 13 Mehuta ya dipapadi

Mokgwa wa go ruta ka dipapadi

Mokgwa wa go ruta le go ithuta ka go bapala o dumela gore ka nako ye nngwe bana ba ithuta ka dipapadi tšeo ba ipapalelago ntle le go šetšwa. Mola ka nako ye nngwe barutwana ba ithuta dipapading tša go šetšwa, e ka ba ba bapala ka noši goba ka dihlopha. Morero wa go ruta le go ithuta o nyaka tekanyetšo magareng ga mešongwana ya dipapadi tša go fapana.

Go ithuta mareo a dipalo ka dipapadi

Ka nako ye nngwe bana ge ba bapala ba kgatha tema ya botswadi. Go fa mohlala, ba ka ekiša batho ba bagolo ge ba apea, goba mootledi wa sefofane goba morutiši ge a ruta. Dipapading tše gantši go šomišwa dilo tšeo di hwetšwago tikologong yeo gomme di šomišwe go emela seo bana ba ratago go se hlagiša, mohl. kota e ka 'šomišwa' bjalo ka lepolanka la go segela merogo. Papading tša mohuta woo dilo di ema legatong la tše dingwe.



Seswantšho sa 14 Lepokisana le ka emela koloi, kota ya emela apola mola maswikana a ema legatong la tšhelete.

Bana ba bapala ka go thala goba go dilo tšeo di laetšago kgonthe. Se ke motheo wa go ithuta gore seka/leswao le ka emela selo se sengwe. Ba ithuta:

- go thala batho ba babedi go emela batho ba nnete.
- dika/maswao a ka emela dilo tše dingwe, bjalo ka '2' e emela dilo tše pedi, e ka ba eng goba eng tše pedi.

- about abstract thoughts and ideas, e.g. printing with a block and talking about the printed shape helps children to recognise the properties of a square.
- how things **relate** to each other, e.g. some containers fit into each other, some blocks can support other blocks, construction toys have some pieces that fit together, but not all of them do.

GLOSSARY

relate
how objects and ideas are connected to each other

There are many other play activities that promote maths learning. Here are some examples.

- When learners use different-sized containers, sand and water to build sandcastles, they explore the concepts of capacity (more/less), size (big/small) and quantity (many/fewer).
- Games, such as hopscotch and skipping, encourage children to use counting and to recognise patterns.
- Children can explore the shape and size of objects by putting objects (such as boxes and balls) in a 'feely bag', choosing one object and describing it.

In practice ...

Plan activities that interest learners and make them curious about maths.

- Encourage fantasy play by starting a game, e.g. place chairs in a row to make a train. Then ask a learner to be at the front as the train driver or on the second or third chair as a passenger. In this way, learners have fun, but also learn concepts such as position and number order.
- Join in and share activities with learners as they play. Show your enjoyment and involvement by thinking aloud and talking about what is happening in the activity, e.g. 'I filled three cups with water – one, two, three. Now I've filled one more so, look, there are four. Look how neatly they are lined up!' Discussion is an important way to teach maths language to children.
- Notice how learners talk about their ideas about counting, combining and sharing during their play, and repeat their findings back to them, e.g. 'You counted out five red beads and then counted out five blue beads. Let's count how many beads you have. That's right, ten beads.'
- Help children to think about symbols during fantasy play. Suggest how one thing might represent another, e.g. 'You could turn that table upside down and use it as your boat.'

4. The level principle

Definition

Skills and concepts build on one another. This is called **developmental progression**. Learners build their knowledge on what they already know and can already do. Good teaching depends on the teacher first finding out what learners already know and understand, and then using activities and everyday situations to build on that to help them learn new knowledge and skills.

GLOSSARY

developmental progression
order in which skills and concepts build on one another

- boikgopolelo le go nagana, mohl. go ngwala ka diriša dipoloko le go bolela ka dibopego tša gona go thuša bana go lemoga dibopego tšeo ba dipentilego.
- ka mokgwa woo dilo di **tswalanago**, mohl. dikgamelo tše dingwe di lekana ka gare ga tše dingwe, dipoloko tše dingwe di kgona go thekga tše dingwe, dipoloko tša go aga di fapana ka sebopego le bogolo.

TLHALOŠANTŠU

tswalano
ka mokgwa woo dilo le dikgopolo di tswalanago

Go na le dipapadi tše ntši tšeo di ka thušago go ruta dipalo. Go fa mohlala.

- Ge bana ba šomiša dikgamelo tša go fapana ka bogolo, mabu le meetse go aga dikhasele, ba ithuta mareo a mothamo (boima/bofefo), bogolo, (kgolo/nnyane) le kelo (ntši/mmalwa).
- Dipapadi tša go swana le sekotšhe le kgati di kgothaletsa bana go ithuta go bala le go lemoga diphethene.
- Bana ba ka ithuta dibopego le bogolo bja dilo ka go lokela dilo (bjalo ka mapokisi le dibolo) ka gare ga 'mokotla', gomme ba topa selo se le tee le go se hlaloša.

Go ikatiša ...

Go hlama lenaneo la mešongwana go ka dira gore barutwana ba rate go ithuta dipalo.

- Hlohleletša dipapadi tša boithabišo, mohl. o ka bea ditulo ka go lokologana o ka re ke ka peseng goba ka tereneng. Morutwana yo a lego ka pele e ka ba mootledi ba bangwe ya ba banamedi. Ka mokgwa wo barutwana ba ka ithuta ka boemo le tatelano ya dinomoro.
- Hlokomela barutwana ge ba bapala. Bontšha go thabela dithaloko ka go gopolela godimo le go bolela ka seo ba se dirago mošongwaneng, mohl. 'Ke tlatša meetse ka dikomiking tše tharo – tee, pedi, tharo. Bjalo ke tšhela ka go ye nngwe, bonang bjalo ke tše nne. Bonang di šalane morago bjang!' Go ahlaahla go bohlokwa kudu ge go rutwa bana dipalo.
- Tšea sedi ge barutwana ba bolela dikgopolo tša bona ka go bala, go hlakanya le go abelana ka nako ya dipapadi le go bušeletša seo ba se utullago/bolelago, mohl. 'O badile dipheta tše hlano le tše dikhubedu bjale bala tše serolwana. A re bale gore o na ke tše kae. O kgonne, ke tše lesome.'
- Thuša barutwana go gopola ka go bapala. Ba hlahle ka dilo tšeo di ka emago legatong la tše dingwe, mohl. 'O ka ribega tafola gomme la e dira seketswana.'

4. Setheo sa kgato ya maleba

Tlhalošo

Bokgoni le mareo di a tswalana. Ye ke **kgolo ya tšwelopele**. Barutwana ba aga tsebo godimo ga seo ba šetšego ba se tseba. Go ruta ga makgonthe go tšeela seo barutwana ba se tsebago šedi, go hlokomela tšeo barutwana ba di tsebago ebile ba di kwešišago gomme tsebo le bokgoni bjo bo bofsa bja agwa go thoma fao.

TLHALOŠANTŠU

kgolo ya tšwelopele
tatelano yeo ka yona mabokgoni le mareo di tswalango

Each learner in your class will have had different experiences. This means that they are all at different starting points in Grade R. Each learner's prior knowledge is the starting point for what he or she will learn. Learners can use what they know already to learn new maths concepts and skills.

In practice ...

- Plan games and activities that are appropriate for observing learners' prior knowledge.
- Observe what learners do and say when they play, and how they manage different activities.
- Record individual learners' strengths and needs.
- Plan new activities that build on each learner's prior knowledge and current understanding.

More about the level principle

Differentiation

Learners in a Grade R classroom are all a similar age, but they each have individual personalities, needs, abilities, strengths and challenges. They differ in:

- their home experience
- their cultural background
- their socio-economic background
- their language level
- their interests
- their prior knowledge
- their readiness to learn
- the pace at which they need to learn
- the support they need from teachers and others to learn.

Teachers need to continuously observe and record each learner's progress and development in maths. Differentiation means that what you teach and the way in which you teach it needs to take into account the different abilities or developmental levels of your learners.

To use this approach, teachers need to observe each learner during activities and determine what they understand and are able to do successfully, and then use this information to plan activities and support for the learners. Some learners may understand a new idea that is presented in an activity, with just a little support from the teacher. Other learners might need more time, more demonstrations, more examples and more support from the teacher to achieve the same level of understanding.

Consider the example of learners in a Grade R class who are all learning about the same topic – position in space (on/under, in front of/behind).

- Some learners will understand the difference between these positions with a little time and explanation from the teacher. They will soon be ready to move on to the next concept – positions in space found in pictures.

Barutwana ba na le maitemogelo a go fapana. Ge ba thoma Mphato wa R ba maemong a go fapana. Ngwana yo mongwe le yo mongwe o thoma ka seo a se tsebago gomme seo ke metheo wa go ithuta ga ngwana yoo. Barutwana ba šomiša tšeo ba di tsebago go ithuta mareo a dipalo le mabokgoni.

Go ikatiša ...

- Hlama lenaneo la dipapadi le mešongwana yeo e tlago šetša tsebo ya barutwana ya motheo.
- Šetša gore barutwana ba dira eng, ba bolela bjang le gore ba bapala bjang.
- Rekhota mabokgoni le dinyakwa tša barutwana (ka o tee ka o tee).
- Hlama mešongwana ya ntšhetšopele yeo e godišago tsebo le kwešišo ya morutwana yo mongwe le yo mongwe.

Tše dingwe ka setheo sa kgato ya maleba

Dipharologantšho

Barutwana ba Mphatong wa R ba lekana ka mengwaga, efela ke batho ba go fapana ka dinyakwa, bokgoni, tsebo le dihlotlo. Ba fapana ka:

- maitemogelo a ka gae
- setšo
- seemo sa ka gae
- tsebo ya polelo
- dikgahlego
- tsebo ya motheo
- boitokišetšo bja go ithuta
- magato a go ithuta
- thekgo yeo ba e hlokago go barutiši.

Morutiši o swanetše go hlokomela le go rekhota tšwelopele ya barutwana dithutong tša dipalo. Pharologantšho e bolela gore seo o se rutago le ka tsela yeo o se rutago se hloka go akaretša mabokgoni a fapanego kapa maemo a tšwelopele a barutwana ka moka.

Ka go šomiša mokgwa wo, barutiši ba swanela ke go hlokomela mešongwana ya ngwana yo mongwe le yo mongwe le go lemoga gore bana ba kwešiša le go tseba eng, gomme ba šomiša tsebo yeo go hlama dithuto tša bona. Barutwana ba bangwe ba kwešiša tsebo ye mpšha ntle le thekgo ya morutiši mola ba bangwe ba nyaka thekgo. Barutwana ba bangwe ba ka nyaka thekgo yeo e tseneletšego ka mekgwa ya go bontšhwa le go fiwa mešongwana ya tlaleletšo gore ba fihlelele kwešišo bja maleba.

Nagana ka barutwana ba Mphato wa R bao ba ithutago ka hlogotaba ye tee – maemo sebakeng (godimo/ka fase, ka pele ga/ka morago ga).

- Barutwana ba bangwe ba tla kwešiša ntle le thušo ye kaalo go tšwa go morutiši gomme ba tla nyaka go ithuta se sengwe se sefsa ka maemo le sebaka. Ba ka kgona go fetela go lereo goba hlogotaba ye nngwe – maemo a ka bonwa ka diswantšho.

- Other learners may need more time and explanation from the teacher while working on activities. They will also move on to the next concept, but it will take them longer and they will need more support.

In practice ...

You can use differentiation in your teaching by:

- being aware of similarities and differences amongst your learners
- planning the best way to teach each learner based on their strengths
- changing what is taught so that it takes into account the ability, **sensory perceptual skills**, prior knowledge, interests and cultural background of all learners
- adjusting, where necessary, what you expect each learner to have learnt by the end of the activity
- thinking about learners' personalities as well as their abilities when you decide how to group learners so that they can learn from and support each other in their groups
- using appropriate activities and resources
- teaching different learners at different rates, e.g. some learners may require more time to complete activities or answer questions than other learners
- using small group activities so that you can focus on individual learners and provide appropriate support for them if they need it
- planning activities for those learners who need more challenging tasks.

GLOSSARY

sensory perceptual skills
using your senses to gather information about your environment, for example: seeing, hearing, touching, smelling and tasting

5. The interaction principle

Definition

Learning involves communication and the sharing of ideas. Learners should be encouraged to talk with the teacher and with each other about what they are thinking and doing. Sharing ideas, asking questions and explaining what they are doing helps them to develop their understanding of concepts. It also helps them learn to use maths language with confidence.

In practice ...

- The classroom atmosphere needs to be relaxed so that learners feel free to ask questions and to share their ideas with each other while they are busy solving problems.
- Young learners need to be taught to use maths words correctly so that they can use them to express their ideas and thinking, e.g. learning to describe a ball as 'round' rather saying it is 'a circle'.

- Barutwana bangwe ba ka nyaka thekgo yeo e tseneletšego ka mekgwa ya go bontšhwa le go fiwa mešongwana ya tlaleletšo. Mafelelong ba tla kwešiša gomme ba nyaka go ithuta se sengwe se sefsa ka maemo le sebaka fela tla nyaka nako le thekgo.

Go ikatiša ...

O ka šomiša dipharologantšho go:

- hlokomela ditshwano le diphapano tša barutwana
- hlama dithutwana tšeo di šetšago bokgoni bja morutwana
- kgonthišiša gore dithuto di hlokomela tšeo barutwana ba di bonago le go di kwa (**go ithuta ka dikwi**), tsebo ya motheo, dikgahlego le ditšo tše fapanego
- fetola, ge go le bohlokwa, mabokgoni ao a bego a lebeletšwe morago ga thuto
- hlokomela semelo sa morutwana ge a swanetše go šoma ka dihlopha lebaka e le gore ba kgone go thušana
- šomiša dithušathuto le mešongwana ya maleba
- ruta barutwana ba go fapana ka mekgwa ya go fapana, mohl. barutwana ba bangwe ba ka nyaka nako ya tlaleletšo go fetšiša mešongwana goba go araba dipotšišo
- šomiša dihlophana tše nnyane go dira mešongwana gore o tle o kgone go ba lemoga mafokodi gomme o kgone go thuša bao ba hlokago thekgo
- hlama mešongwana ya go hlotla mabokgoni a barutwana.

TLHALOŠANTŠU

go ithuta ka dikwi
go šomiša dikwi go kwešiša tikologo, mohl. dikwi tša go bona, theeletša, kgoma le go nkgelela

5. Setheo sa tswalano

Tlhalošo

Go ithuta go akaretša poledišano le abelana dikgopolo. Barutwana ba swanetše go hlohleletšwa go bolela le barutiši le barutwana ba bangwe ka tšeo ba di gopolago le ka maikutlo a bona. Go abelana dikgopolo, go botšiša le go hlaloša tšeo ba di dirago go tla ba thuša go kwešiša mareo. Se se tla ba thuša gošomiša polelo ya dipalo ka boitshepo.

Go ikatiša ...

- Phaposi e swanetše go ba lefelo leo go lona barutwana ba ikwago ba lokologile go botšiša le go abelana dikgopolo ge ba le gare ba rarolla mathata a dipalo.
- Barutwana ba swanetše go rutwa go šomiša polelo ya dipalo ka mokgwa wa maleba, mohl. go hlaloša kgwele bjalo ka ‘sediko’ le ‘sego kgokolo’.

Learners tend to say, '*too small*'. Reinforce the maths language by repeating what the learner has said, but use '*too short*' instead.

Figure 15 Teachers can guide children to use maths language.

More about the interaction principle

Communication: Active listening and speaking

We learn best when we do something and talk with another person, in pairs or groups. Learners need to develop skills in communicating and need to know how to be part of a conversation. They should learn to listen actively to what the other person is saying, and respond appropriately. This means that they need to be able to:

- listen to what is being said
- respond in a way that is appropriate
- take turns in speaking and listening.

In practice ...

Help learners to develop good listening and speaking skills by providing opportunities for them to:

- join in a conversation or discussion
- listen carefully in a focused way
- share or express their thoughts and ideas
- give responses and feedback
- ask questions
- follow instructions.

When teachers listen to learners actively, learners:

- are encouraged to share their ideas, questions, problems and opinions
- feel that the teacher is interested in them and cares about whether they understand something
- develop their own active listening skills.

Responding in an appropriate way to something is an important part of communication, and of teaching and learning. When learners get a proper response to their questions or ideas, they believe that their ideas are important and have value. It also models for them how to respond appropriately.

Barutwana ba somiša '*nnyane ka go fetiša*'. Ba thuše go somiša polelo ya dipalo ka go bušeletša seo ba se boeleditšego, empa somiša '*kgopana ka go fetiša*'.

Seswantšho sa 15 Morutiši o hlahla bana go šomiša polelo ya dipalo.

Tše ntši ka setheo sa tswalano

Kgokagano: Go theeletša le go bolela

Bana ba ithuta bokaone ge ba dira goba ba bolela le batho ba bangwe, ka bobedi goba ka dihlopha. Barutwana ba swanetše go aga bokgoni bja go kgokagana le go kgatha tema dipoledišanong. Ba swanetše le go ithuta go theeletša gore ba tle ba kgone go araba ka kgonthe. Ba swanetše go:

- theeletša seo se bolelwago
- araba ka mokgwa wa maleba/kgonthe
- šielana go bolela le go theeletša.

Go ikatiša ...

Morutiši a ka thuša barutwana go bolela le go theeletša ka go ba fa sebaka sa go:

- kgatha tema dipoledišanong goba dikahlaahlong
- theeletša ka šedi
- abelana dikgopolo le go tšweletša maikutlo
- fa dikarabo le dipoelo
- botšiša dipotšišo
- latela ditaelo.

Ge morutiši a theeletša barutwana ba:

- hlohleletšwa go abelana dikgopolo, go botšiša, go tšweletša dihlotlo le go fa dikgopolo tša bona
- holofela gore morutiši o kwa seo ba se bolelago ebile o na le kgahlego ya go bona ba tseba ebile ba kwešiša
- aga mabokgoni a bona a go theeletša.

Go araba ka tsela ya maleba go bohlokwa dipoledšanong le dikagišanong le go ithuteng le go ruta. Ge barutwana ba hwetša dikarabo dipotšišong tša bona ba dumela gore dikgopolo tša bona di bohlokwa ebile di tšeelwa hlogong. E ba seka go bona gomme le bona ba ithuta go araba ka tsela ya maleba.

In practice ...

You can respond appropriately to your learners by:

- never allowing them to feel they have asked a stupid question
- sometimes repeating a question they ask, so that they know they are being listened to
- encouraging them to ask clear questions by rephrasing one of their questions, or asking them to repeat it in a different way
- trying to answer their questions in ways that are meaningful to them, e.g. by drawing on what they already know, and/or by using examples from their experience.

The role of language in maths

We all use language to communicate. We use it to share ideas and information, and to describe **abstract** ideas. Language is also important for maths. We need it to describe, understand, question, think, reason, explain and represent maths concepts.

The language of maths includes the words and symbols we use to communicate or share maths ideas or concepts. Sometimes we use everyday language, but maths language is **exact** and specific. You can read more about everyday knowledge and school knowledge on pages 16–23. Here are three examples of this.

- In everyday language the word 'half' might be used to describe something that is more or less shared into two parts of a similar size. However, in maths, 'half' means two parts of a whole that has been divided equally. The two parts are exactly the same size or number.
- In everyday language we might say, 'The teacher is big.' However, in maths we would say, 'The teacher is tall', and measure his/her height, counting 'one', 'two', 'three', and so on as we measure.
- In everyday language we might say that the triangle is a pointy shape. However, in maths we would say that a triangle has three straight sides and three corners.

GLOSSARY

abstract
an idea, a thought or a feeling

exact
precise, accurate

Figure 16 Maths language is exact.

Go ikatiša ...

O ka araba barutwana ka tsela ya maleba ka go:

- dira gore ba se inyatše ge ba botšiša le go araba dipotšišo
- bušeletša seo ba se boletšego, go laetša gore o theeleditše ebile o a ba kwa
- hlohleletša go botšiša botse ka go ba kgopela gore ba fetole potšišo goba go ba kgopela gore ba botšiše gape ka mokgwa wa go fapana
- leka go araba ka tsela yeo ba tlago kwešiša, mohl. go ba lemoša ka seo ba se tsebago, le/goba ka go šomiša maitemogelo a bona.

Mohola wa polelo thutong ya dipalo

Ka moka re šomiša polelo go dira dikgokagano. Re šomiša polelo go tšweletša maikutlo, go dira ditsebišo le go tšweleletša **dikgopolo**. Polelo e bohlokwa thutong ya dipalo. Polelo e thuša go hlaloša, go kwešiša, go botšiša, go nagana, laodiša le go hlatholla mareo a dipalo.

TLHALOŠANTŠU

dikgopolo
kgopolo, monagano goba maikutlo

nepo
kgonthe, ikgetha

Polelo ya dipalo e akaretša mantšu le maswao ao re a šomišago ge re ithuta dipalo. Ka nako ye nngwe re šomiša polelo ya ka mehla le ge go le bjalo polelo ya dipalo e **nepile** ebile ke ya go ikgetha. O ka bala go tšwelapele ka tsebo ya ka mehla le tseba ya sekolong matlakaleng a 16–23. Hlokomela mehlala ye e latelago ye meraro.

- Ka polelo ya ka mehla 'seripa' se ka bolela go arogana ka go lekana. Eupsa, ka polelo ya dipalo 'seripa' se bolela go arogana selo ka diripa tše pedi tša go lekana. Diripa tšeo tše di swanetše go lekana ka kgonthe.
- Ka polelo ya ka mehla re ka re, 'Morutiši ke yo mogolo.' Mola ka polelo ya dipalo re swanetše gore, 'Morutiši ke yo motelele', gomme ra lekanyetša botelele bja gagwe, re bala 'tee', 'pedi', 'tharo', bj.bj. ge re lekanyetša.
- Ka polelo ya ka mehla re ka re khutlotharo e na le dintlha. Mola ka polelo ya dipalo re re khutlotharo e na le mahlakore a mararo le dikhutlo tše tharo.

Seswantšho sa 16 Polelo ya dipalo e nepišitšwe.

Developing children's maths language

Part of learning new concepts involves learning new language. Teachers need to guide learners as they gradually begin to understand and use new maths language at school and in their daily lives. They need to introduce Grade R learners to the correct maths vocabulary that will allow them to follow instructions, ask questions and express their thinking and reasoning. Learners acquire new language and maths at the same time. As they learn new words, they learn more concepts, then they learn more words and more concepts, and so they become more and more successful in their maths tasks.

In practice ...

Learners who know the meaning of the words 'round' and 'flat' can describe the mathematical properties of objects. For example, through their play they come to realise that round objects roll and objects with flat sides slide. Learners who do not know the terms 'round' or 'flat' can only draw limited conclusions about the objects they explore – boxes slide and balls roll. These learners need to be encouraged to learn the appropriate new language to extend their conceptual understanding and knowledge.

Figure 17 Developing maths language through play

Encourage learners to use their home language as much as possible. This helps to develop their general language abilities and thinking skills. In South Africa, many Grade R learners learn through their second or third language. Maths teaching can help to develop their ability to use these languages if they are given opportunities to talk about what they are doing during maths activities, to share their ideas and to discuss their reasoning.

Go aga mabokgoni a bana a polelo ya dipalo

Go ithuta dilo tše di mpsha go akaretša go ithuta polelo. Barutiši ba swanetše go hlahla barutwana go kwešišiša le go šomiša polelo ya dipalo sekolong le maphelong a bona. Ba swanetše go ba ruta barutwana ba Mphato wa R tlotlontšu e lokileng ya dipalo gore ba kgone go latela ditaelo, go botšiša dipotšišo, go tšweletša maikutlo le dikgopolo. Barutwana ba ithuta dipalo le polelo ka nako ye tee. Ge ba ithuta dipalo ba ithuta le mantšu gomme se se dira gore ba atlege mešongwaneng ya bona ka kakaretšo.

Go ikatiša ...

Barutwana bao ba tsebago tlhalošo ya mantšu 'sediko' le 'papetla' ba ka kgona go hlaloša dipalo. Go fa mohlala, ka nako ya go bapala ba ka lemoga dilo tša sebopego sa sediko di a kgokologa mola dilo tša dipapatla di thelela. Barutwana bao ba sa tsebego mantšu ao bjalo ka 'sediko' goba 'phaphathi' ba ka ba le tsebo e nnyane ka dilo tše ba di kwešišago – gore mapokisi a thelela mola kgwele e kgokologa. Barutwana ba swanetše go kgothaletswa go ithuta polelo ya maleba gore ba tle ba kgone go kwešiša le go ithuta.

Seswantšho sa 17 Go ithuta polelo ya dipalo ka go bapala

Hlohleletša barutwana go bolela ka polelo ya gae. Se se tla ba thuša go tšweletša dikgopolo le go ithuta polelo ya sekolong. Mo Afrika Borwa barutwana ba bantši ba Mphato wa R ba ithuta ka polelo ya tlaleletšo ya bobedi goba ya boraro. Thuto ya dipalo e ka thuša barutwana go aga mabokgoni a polelo ge ba hwetša/fiwa sebaka sa go bolela tšeo ba di dirago ka nako ya dithuto tša dipalo, ba tla kgona go abelana dikgopolo, go ahlaahla le go akanya.

Learning correct maths vocabulary

Learners need the vocabulary to talk and think about maths concepts. For example, they need to know words such as these to describe:

Figure 18

- quantity (a lot, more, many, fewer)

Figure 19

- calculation (add, take away)

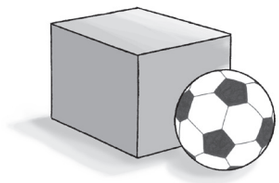


Figure 20

- shape (round, square)

Figure 21

- position (first, second, third, last, before, after, between)

Figure 22

- size (big, small)

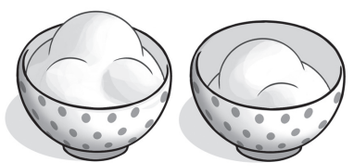


Figure 23

- measurement (more, less, long, wide, full, heavy, tall, short, morning, night)

Encourage learners to use maths vocabulary by using it yourself when you speak with them about maths concepts, and by rephrasing what they say into maths language. At the end of each Content Area in Section 3 there is a full list of maths vocabulary specific to the Content Area.

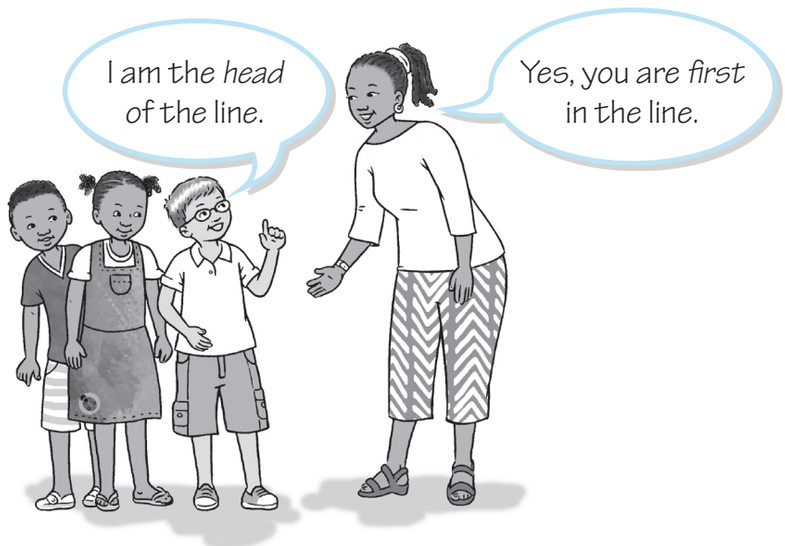


Figure 24 Encourage learners to use maths vocabulary.

Go ithuta tlotlontšu ya maleba ya dipalo

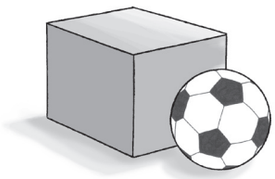
Barutwana ba hloka tlotlontšu go bolela le go gopola ka dipalo. Go fa mohlala, ba swanetše go tseba ditlhalošo tša mantšu a:

Seswantšho sa 18

- kelo (ntši, ntšintši, dinnyane)

Seswantšho sa 19

- hlakanya (palelo, go ntšha)



Seswantšho sa 20

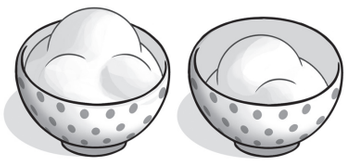
- sebopego (sediko, khutlonne)

Seswantšho sa 21

- maemo/tatelano (pele, bobedi, boraro, mafelelo, ka pele, ka morago, gare)

Seswantšho sa 22

- bogolo/saese (kgolo, nnyane)



Seswantšho sa 23

- kelo (ntši, nnyane, telele, bophara, go tlalo, boima, telele, kopana, mesong, bošego)

Hlohleletša barutwana go šomiša tlotlontšu ya dipalo ge ba bolela ka phapošeng kudu ka nako ya thutwana ya dipalo, o ka bošeletša seo ba se boletšego gomme wa ba hlohleletša go bolela gape ka polelo ya dipalo. Mafelolong a Dikarolo tša Diteng ('Diarea tša Diteng') mo Karolo 3 re hwetša tlotlontšu yeo e šomišitšwego ya dipalo ya go sepelelana le Dikarolo tša Diteng.

Seswantšho sa 24 Hlohleletša barutwana go šomiša tlotlontšu ya dipalo.

Maths focuses on the relationship between things. Learners need the language to think and talk about these relationships, including:

- comparisons between collections (many, few, more, fewer)
- comparison of size and measurement (big/small, taller/shorter, heaviest/lightest)
- comparison of shape (three sides, four sides, round or curved)
- position in space (in front of, behind, under, next to, between)
- the order of things (first, last, second, next, before, after, between)
- comparisons between the amount of something (more, less, the same).

Understanding and using symbols

Symbols are all around us. The signs that learners see in their everyday environment often have both words and symbols on them. Learners learn that these words and symbols have meaning. For example, symbols show you when to cross the road or how much something costs.

Figure 25 A stop sign and the numeral '2' are both symbols.

Young children experiment with written symbols through their drawing and early writing attempts. In Grade R, understanding maths language builds the foundation for using maths symbols correctly.

Reasoning and predicting

Learners also need the language to:

- follow and comment on someone else's **reasoning**
- explain their own thinking and use this to **predict** what will happen next. They need language to describe a pattern and to say what will come next if the pattern is continued.

GLOSSARY

reasoning
the thinking behind an idea or statement

predict
to say or estimate what will happen in the future

Figure 26 Predicting what shape comes next in the sequence.

In practice ...

To encourage maths language development, learners need plenty of opportunities to:

- play
- spend time with and communicate with adults and other children
- talk about their ideas and reasoning.

Dipalo di šeditše tswalano magareng ga dilo. Barutwana ba hloka polelo go gopola le go bolela ka tswalano ye, go akaretša:

- bapetša kgobokanyo ya dilo (ntši, mmalwa, tše nnyane)
- bapetša bogolo/saese le tekanyo (kgolo/nnyane, telele/kopana, boima/bofefo)
- bapetša sebopego (mahlakore a mararo, mahlakore a mane, nkgokolo/sediko)
- maemo/tatelanong sekgobeng (ka pele ga, ka morago, ka tlase, kgauswi, bogare)
- tatelano ya dilo (mathomo, mefelelo, bobedi, kgauswi, ka pele, ka morago, magareng)
- bapetša kelo/tekolo/kelo ya bontši le dilo tše dingwe (ntši, nnyane, go swanwa/tshwano).

Go kwešiša le go šomiša maswao

Maswao a re dikologile. Maswao ao barutwana ba a bonago tikologong ka mehla ka nako ye nngwe a sepela le mantšu. Barutwana ba ithuta gore mantšu le maswao ao a bolela eng. Go fa mohlala, leswao la go putla tsela goba la go bontšha theko ya selo.

Seswantšho sa 25 Leswao la ema le '2' bobedi ke maswao.

Barutwana ba ithuta ka go leka go ngwala maswao goba go a thala (thala) pele ba ithuta go ngwala. Go kwešiša polelo ya dipalo Mphatong wa R ke go aga motheo wa go šomiša maswao a dipalo ka mokgwa wa maleba.

TLHALOŠANTŠU

fahlela
go gopodišiša taba goba polelo

naganela
go akanya gore go latela eng

Akanya le naganela

Barutwana ba hloka polelo go:

- latela le go tlaleletša goba go gana seo se bolelwago (**fahlela**)
- hlatholla seo ba se gopolago gomme ba se šomiša go **naganela** seo se tlilego go hlaga. Ba hloka polelo go hlaloša diphethene le go nagana gore go latela phethene e fe.

Seswantšho sa 26 Go akanya gore go latela sebopego sefe.

Go ikatiša ...

Go hlohleletša kgolo ya tsebo ya dipalo, barutwana ba hloka sebaka sa go:

- bapala
- bolela le batho ba bagolo le bana ba bangwe
- akanya le go bolela dikgopolo tša bona.

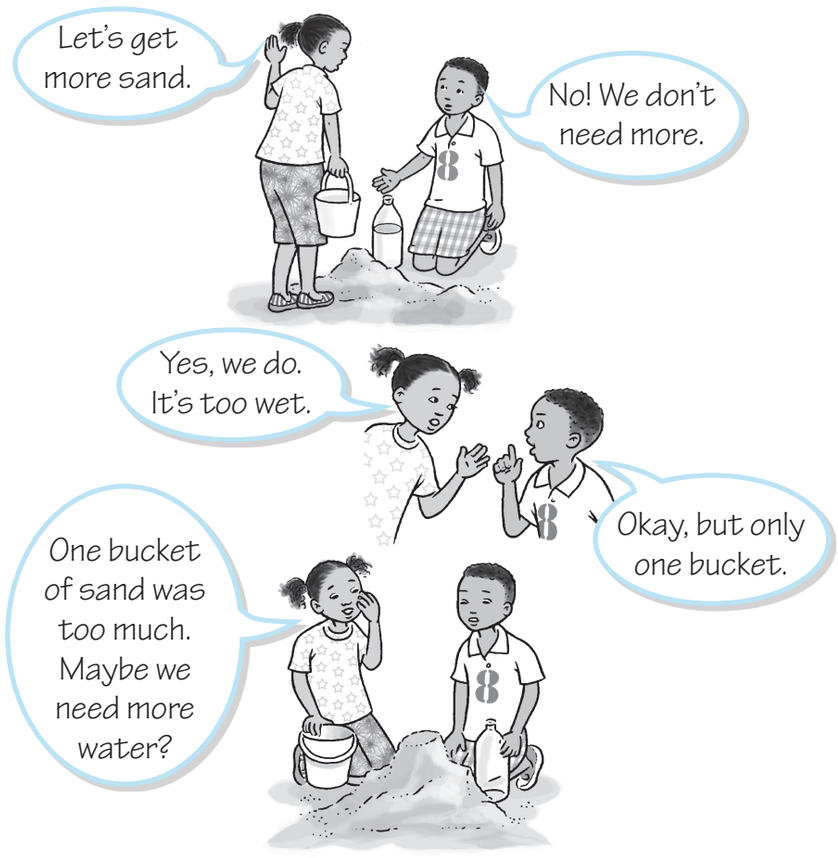


Figure 27 Play is an opportunity to use maths language.

Notice how learners use maths language when they:

- talk about what they are doing
- describe their experiences outside of school, e.g. setting the dinner table, playing a game or explaining how they got from home to school
- make up words when the don't yet know the correct maths language for something, e.g. describing a corner as a 'sharp end' or naming 'eleven' as 'eleventeen'
- predict what will happen, e.g. 'The tower will fall over if I put more blocks on the top.'

6. The guidance principle

Definition

Teachers guide learners in understanding new knowledge. They organise the teaching and learning situation to create opportunities for learners to focus on specific tasks and materials so that the learners can explore an idea and share their thinking about a maths problem. Teachers model what to do and ask guiding questions to help learners solve the problem. This is sometimes called **mediation**. Through mediation, learners develop new knowledge, behaviours and strategies for solving problems that they can use in other contexts.

GLOSSARY

mediation
a joint activity where a person who knows more or has more highly developed skills guides others to learn something new

Seswantšho sa 27 Go bapala go tliša sebaka sa go šomiša polelo ya dipalo.

Hlokomela gore barutwana ba šomiša polelo ya dipalo ge ba:

- bolela tšeo ba di dirago
- hlaloša maitemogelo a bona ge ba se sekolong, mohl. go beakanya tafola, ge ba bapala dipapadi goba ba hlaloša tsela yeo ba e sepelago go tla sekolong
- ithomela mantšu ge ba sa tsebe lentšu la maleba, mohl. hlaloša khutlo bjalo ka 'ntlha' goba 'lesometeeng' lebakeng la 'lesometee'
- akanya seo se tlilego go direga, mohl. 'Tora yeo ba e agago e tlile go wa ge ba ka tšwelapele go bea dipoloko tše dingwe.'

6. Setheo sa tlhahlo

Tlhalošo

Morutiši o swanetše go hlahla barutwana go hwetša tsebo. O swanetše go beakanya dithuto ka mokgwa woo barutwana ba tla kgonago go utolla tsebo gomme ba kgona go abelana dikgopolo. Morutiši o swanetše go hlahla barutwana ka go ba bontšha seo ba swanetšego go se dira gore ba kgone go hwetša dikarabo. Se ka nako ye nngwe se bitšwa **go thekga** barutwana. Go thekga barutwana ke go ba hlahla gore ba kwešišo tsebo ye mpsha, maitshwaro le mekgwa ya go hwetša dikarabo.

TLHALOŠANTŠU

go thekga
mošongwana woo go wona motho yo a tsebago a thušago yo a sa tsebego

In practice ...

How to use mediation in the classroom

1. Identify what concepts and skills the learners already know and plan an appropriate activity.
2. Give the learners an activity that focuses on the new concept or skill.
3. Model the activity or show the learners how to complete it.
4. Give feedback to the learners on what they are doing.
5. Give hints or clues to assist learners, but don't provide the solution.
6. Prompt the learners by asking questions about what they are doing.
7. Encourage learners to ask questions so that they make new connections and discoveries for themselves.
8. Give the learners another activity that they complete on their own, using the concept or skill they have learnt. In this activity, they should practise using the new skill or knowledge in different ways. Guide and support them, but in a less hands-on way.
9. Give the learners more activities and gradually withdraw your guidance and support, allowing them to do things on their own.

More about the guidance principle

Teaching approaches

Teaching involves using different approaches at different times:

- Direct instruction involves very little discussion. Learners might ask questions, but these are mostly to do with following the instructions. Direct instruction should be a very small part of teaching.
- Guided instruction involves teachers and learners working together to solve a problem or learn a new concept or skill. The teacher gives guidance and support until the learners are able to do the activity on their own. In Grade R Maths this is called a teacher-guided activity.

Structured activities

- Structured activities are teaching and learning activities, often guided by the teacher. They focus on a particular maths concept or skill.
- In the Grade R Maths programme, structured activities are divided into:
  - whole class activities
  - small group teacher-guided activities
  - small group independent activities
  - free choice activities.

Asking questions

Good questioning techniques are essential for teaching. Grade R Maths encourages teachers to use open-ended questions that stimulate maths thinking. These kinds of questions are found in problems and investigations. Open-ended questions also help teachers to gather information about learners' level of understanding and knowledge.

Go ikatiša ...

Mokgwa wa go šomiša go thekgana ka phapošeng

1. Hlokomela gore barutwana ba tseba eng gomme mešongwana e ba thuše go godiša tsebo yeo.
2. Efa barutwana mošongwana wo o rutago dilo le bokgoni bjo bofsa.
3. Bontšha barutwana gore mošongwana o dirwa bjang.
4. Efa barutwana dipoelo ge ba dutše ba šoma.
5. Efa barutwana tlhahlo ge ba dutše ba dira mošomo.
6. Thuša barutwana ka go ba botšiša dipotšišo ka tšeo ba di dirago.
7. Hlohleletša barutwana go botšiša, go nyakišiša le go leka mekgwa e mefsa.
8. Efa barutwana mošongwana o mofsa wo ba tla o dirago ka noši, ka go sebedisa kgopolo goba mabokgoni ka morago ga thuto ye mpsha. Mo mošongwaneng wo, ba lokela go sebedisa bokgoni goba tsebo ye mpsha ka ditsela tse fapaneng. Ba fe thekgo, efela o se ba fe dikarabo.
9. Efa barutwana mešongwana ya tlaleletšo gomme o fokotše go ba hlahla gore ba tlwaele go dira mešongwana ka noši.

Tše dingwe ka setheo sa tlhahlo

Mekgwa ya go ruta

Go ruta go akaretša ditsela/mekgwa ya go fapana:

- Go laela moo go hlokegago dikakanyo. Barutwana ba ka botšiša dipotšišo, efela e swanetše go ba tša go ba thuša go latela goba go kwešiša ditaelo. Ka lebaka leo ditaelo ga tša swanela goba tše ntši ka nako ya thutwana.
- Ditaelo tša tlhahlo di swanetše go akaretša morutiši yo a šomago le barutwana go hwetša le go kwešiša tsebo ye mpsha ya thuto ya dipalo. Morutiši o swanetše go hlahla barutwana go fihlela ba kgona go dira mošomo ka noši. Ka go *Grade R Maths* se se bitšwa mošongwana wa go hlahlwa.

Mešongwana yeo e beakantšwego

- Mešongwana yeo e beakantšwego gantši ke yeo e hlahlwago ke morutiši ka nako ya thutwana. Gantši mešongwana yeo e bea šedi go karolo ye e rilego ya mabokgoni a dipalo.
- Ka gare ga lenaneo la *Grade R Maths* mešongwana yeo e beakantšwego e arotšwego ka tsela ye:
  - mešongwana ya barutwana ka moka
  - mešongwana ya dihlopha tše nnyane ka tlhahlo ya morutiši
  - mešongwana ya dihlopha tše nnyane, ntle le tlhahlo
  - mešongwana ya boikgethelo.

Go botšiša dipotšišo

Dipotšišo tša maleba di bohlokwa dithutwaneng tša bana. *Grade R Maths* e hlohleletša barutiši go botšiša dipotšišo tšeo di bulegilego tša go hlotla moya wa dipalo. Mehuta ye ya dipotšišo e humanega ge ba dira dinyakišišo. Dipotšišo tša go lokologa dithuša barutiši go hwetša tshedimošo ka seo barutwana ba se tsebago ebilego ba se kwešišago.

Closed questions (Low order questions)	Open-ended questions (Higher order questions)
Questions that have a limited or 'yes'/'no' response.	Questions that have more than one possible answer.
Example: Is this a triangle? Example: Is this a triangle or a square?	Example: What can you tell me about triangles? Example: How is a triangle different from a square?

In practice ...

- Ask open-ended questions that give learners opportunities to think independently and communicate their thinking. Avoid using closed questions that focus only on remembering facts, or that have only 'yes'/'no' answers.
- Give learners some time to try to answer a question so that they can think, organise their thoughts and then express them in words.

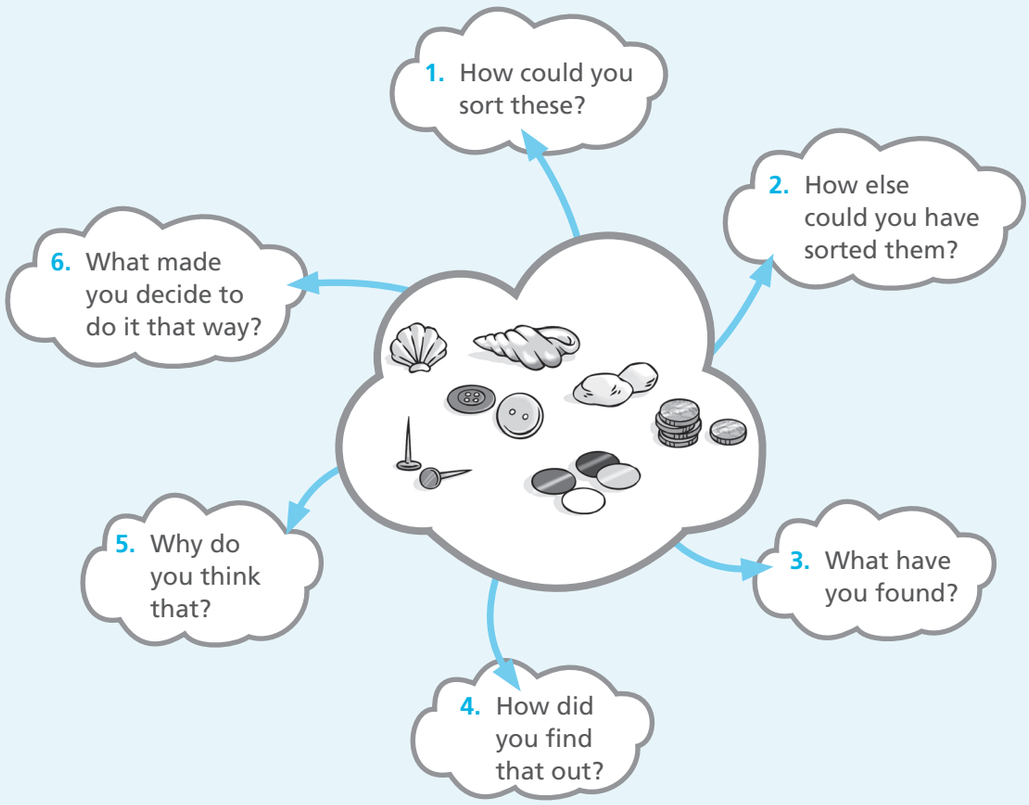


Figure 28 Open-ended questions

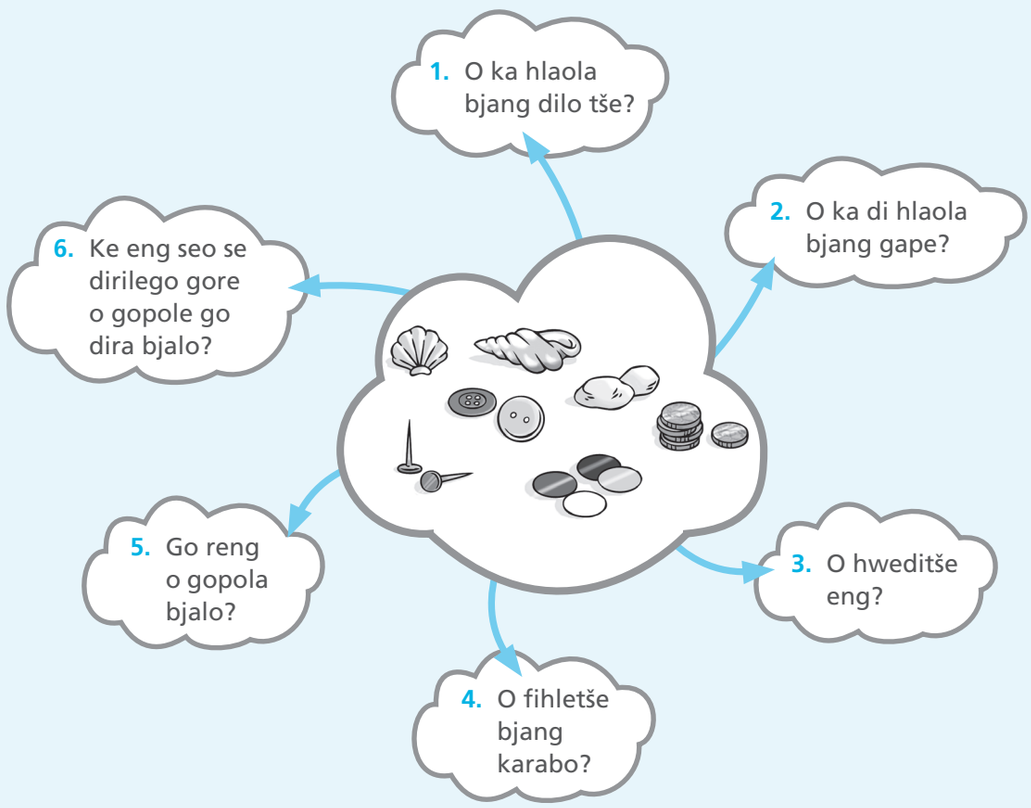
Problem solving

Learners encounter problems that they cannot solve immediately. Grade R teachers should support learners to develop skills to approach these problems more and more independently. This includes adequate time to talk about the problem, try out ideas, learn from mistakes, play with the problem and adapt their ideas based on investigations.

Potšišothwii (Tšeo di sa nyakago kgopolo)	Potšišo tša go lokologa (Tšeo dinyago kgopolo)
Dipotšišo tša go hloka karabo ya 'ee' goba 'aowa'.	Potšišo tša go ba le dikaro tše ntši.
Mohlala: Se ke khutlotharo naa? Mohlala: Se ke khutlotharo goba ke khutlonnethwii?	Mohlala: Mpotše ka khutlotharo? Mohlala: Khutlotharo le khutlonnethwii di fapana bjang?

Go ikatiša ...

- Botšiša barutwana dipotšišo tša go lokologa, se se tla ba thuša go ikgopolela le go hlagiša dikgopolo. Phema go botšiša dipotšišothwii tšeo di nyakago gore barutwana ba gopole seo ba se boditšwego ka go araba 'ee' goba 'aowa'.
- Efa barutwana sebaka sa go gopola dikarabo, se se ba ruta go beakanya dikgopolo gore ba tle ba kgone go di hlagiša.



Seswantšho sa 28 Dipotšišo tša go bulega

Tharollo ya bothata

Barutwana ba gahlana le mathata ao ba se a rarollego ka nakwana. Morutiši wa Mphato wa R o swanetše go ruta le go hlohleletša barutwana go rarolla mathata ka bonako le gona ka noši. Se se ka dirwa ka go ba ruta go bolela ka bothata, go leka dikarabo, go aga dikgopolo, go ithuta ka go dira diphošo, go bapala ka bothata bjoo gomme ba hlama dikgopolo le go nyakišiša dikarabo.

In practice ...

- Learners do most of the talking.
- Learners are encouraged to try out ideas and make mistakes.
- Learners share their thinking with the teacher and other learners.
- Teachers listen to learners' ideas.
- Teachers' questions are generally open ended and guide learners' thinking.

7. The inclusivity principle

Definition

Respect for **diversity** and inclusion are children's rights. They are essential if we want all children to learn and develop to their full potential. Teachers need to be aware of each learner's identity, needs and interests.

Every South African classroom is diverse. There are many different children and each one brings their own identity, personality, capabilities, interests and background. **Inclusivity** is the practice of ensuring that all children, regardless of diversity, are included in all classroom activities, especially those learners who would otherwise be excluded or marginalised. Disability is *one* of the reasons why children are often excluded, but importantly, social, emotional, physical and attitudinal issues also present barriers to learning. Teachers who have an inclusive mindset, welcome and embrace diversity amongst their learners.

Inclusive education means that all children attend school in age-appropriate classes. They are welcomed, encouraged to participate in all aspects of the school and are supported to learn and achieve their full potential.

GLOSSARY

diversity
a range of people with a variety of differences of, for example, identity, personality, capabilities, interests and background

inclusivity
the practice of ensuring that all children, regardless of their differences, are included in all classroom activities

In practice ...

- All learners have a right to feel special, participate and be included in classroom activities and discussions. This includes children who have disabilities, behavioural issues or other barriers to learning.
- All learners, their parents and the school staff should be welcome, included, treated fairly and respected regardless of culture, ethnicity, race, sex, gender identity, sexual orientation, physical or intellectual ability, religion or socio-economic status.

Go ikatiša ...

- Barutwana ba hlohleletšwe go bolela.
- Barutwana ba hlohleletšwe go dira diphošo.
- Barutwana ba bolele dikgopolo tša bona go morutiši le barutwana ba bangwe.
- Morutiši a theeletše dikgopolo tša barutwana.
- Morutiši a šomiše dipotšišo tša go bulega tšeo di hlatlhago barutwana.

7. Setheo sa boakaretši

Tlhalošo

Go hlompha **diphapano** le go akaretša ke tokelo ya barutwana. Diphapano le go akaretša di bohlokwa gore barutwana ba kgone go ithuta le go gola ka phethagalo. Barutiši ba swanetše go lemoga barutwana le go hlokomela dinyakwa tša bona le tšeo di ba thabišago le kgatlhago.

Phapoši ye nngwe le ye nngwe mo Afrika-Borwa e na le barutwana ba go fapana. Ngwana yo mongwe le yo mongwe o tliša boyena, mekgwa, tšeo a di tsebagole go dikgonago, tšeo di mo kgatlhago le fao a tšwago gona. **Boakaretši** ke mokgwa wa go kgonthišiša gore barutwana ka moka ntle le diphapano ba kgatha tema mešongwanang gomme ga ba kgethologanywe. Bogolofadi ke lebaka le *lengwe* la go dira gore barutwana ba kgethollwe ka lebaka la dipopego, barutwana ba ka kgethollwa gape dikagišanong, ka maikutlo le ka mekgwa ka gomme tše e ka ba mapheko thutong ya ngwana. Barutwana ba swanetše go lokologa gomme ba amogelwe ka fao ba lego ka gona.

Thuto ya boakaretši e hlaloša thuto yeo barutwana ba mengwaga ye e rilego ba tsenago sekolo gomme ba tsena mphato wa maleba. Bana ka moka ba amogelwa, ba hlohleletšwa go kgatha tema mafapeng ka moka a sekolo gomme ba thekgwa gore ba ithute ba fihlelele tšeo ba di kgonago.

TLHALOŠANTŠU

diphapano
diphapano magareng ga batho bjalo ka boitsibišo, mekgwa, tšeo ba di tsebago/kgonago, tšeo di ba kgatlhago le fao ba tšwago gona

boakaretši
mokgwa wa go kgonthišiša gore barutwana ka moka go sa šetše diphapano tša bona ba akaretšwa mešongwanang yeo e dirwago ka phapošeng

Go ikatiša ...

- Barutwana ba na le tokelo ya go kwa ba kgethegile, ba rata go kgatha tema le go akaretšwa mešomg ya ka phapošeng. Go akaretšwa barutwana bao ba nago le bogole, bothata bja boitshwaro le ditšhitišo tše dingwe tša go ithuta.
- Barutwana ka moka, batswadi le bašomedi ba sekolo ba swanetše go kwa ba lokologile, ba amogetšwe, hlomphiwa go sa kgethe setšo, mohlobo, mmala, bong, tumelo le leago.

More about the inclusivity principle

Different learning styles

Diversity is not only about our physical characteristics, beliefs, or faith, it can also include how we learn new skills. Not all children learn in the same way. There is a diverse range of learning styles that are appropriate to each learner. For example, not all learners can follow the teacher's instructions by only listening to what she is saying. Some learners would benefit from seeing a picture that represents what they have to do. Others may need an action or hands-on activity to fully understand an instruction or concept.

In practice ...

Successful teachers are able to identify the learning needs of each learner in their class and to then adapt activities to best suit each learner's needs. The following eight learning styles are appropriate for learning and teaching in Grade R:

- Visual (Spatial): Visual learning involves the use of pictures or diagrams to remember information. Some learners understand and remember information easier when it is represented as pictures or diagrams.
- Auditory (Aural-Musical): Auditory learning depends on listening to information to fully understand and remember it. Some learners learn best when they can listen to the teacher, or to a song or recording.
- Verbal (Linguistic): Verbal learning involves speaking and expressing ideas out loud, and drawing or writing to fully understand and remember information.
- Physical (Kinaesthetic): Physical learning takes place when the learner is involved in a physical, hands-on activity. These learners use their bodies and sense of touch (tactile) to understand information.
- Logical (Mathematical): Logical learning involves the use of logic and reason to make sense of information. Logical learners will use logic and look for reasons when they are learning new things.
- Social (Interpersonal): Social learning involves learning with others. Some learners prefer to learn as part of a group or with a friend.
- Solitary (Intrapersonal): Solitary learning involves learning on your own. Some learners concentrate best when they can focus on their thoughts and feelings on their own, without being distracted by others.
- Naturalist (Nature): Naturalist learning takes place in nature. Some learners learn and understand best when they can explore and investigate nature through outdoor experiences, such as observing animals, gardening, taking care of the earth or exploring the environment.

Tše dingwe ka setheo sa boakaretši

Mehuta ye e fapanego ya go ithuta

Pharologano ga e bolele fela ka tebego le ditumelo, e hlokomedišiša gape le mekgwa ya go ithuta. Bana ga ba sware le go kwešiša dithutwana ka tsela ya go swana ebile ga ba ithute ka mokgwa wa go swana. Mekgwa ka moka ya go ithuta e bohlokwa ka ge e hlokomedišiša dinyakwa tša barutwana. Go fa mohlala, ga se barutwana ka moka bao ba latelago ditaelo ka morago ga gore morutiši a bolele. Barutwana ba bangwe ba kwa le go kwešiša bokaone ka go bona diswantšho tša tlhahlo. Ba bangwe ba swanetše go dira mošongwana pele ba ka kgona go kwešiša.

Go ikatiša ...

Barutiši bao ba atlegilego ba kgona go lemoga dinyakwa tša barutwana ka moka ka phapošeng gomme ba kgonthišiša gore mešongwana e hlangwa go šeditšwe dinyakwa tša morutwana yo mongwe le yo mongwe. Mekgwa ye e latelago ye seswai e bontšha ka fao ba ba ka thušago barutwana ba Mphato wa R go ithuta ka katlego:

- Pono (Go šomiša tshedimošo mo dišwantshong): Thuto ya go bona e akaretša diswantšho tšeo di thušago barutwana go gopola. Barutwana ba bangwe ba kwešiša le go gopola tshedimošo ka pela ge e hlagišitšwe ka mokgwa wa diswantšho.
- Go theeletša (Go kwa mmino): Go ithuta ka go theeletša go thuša barutwana go kwešiša le go gopola tshedimošo yeo ba e theeleditšego. Barutwana ba bangwe ba ithuta ka go theeletša morutiši goba go theeletša seyalemoya/sebapalammino goba theeletša dikoša le go di opela.
- Go bolela (Polelo): Go ithuta ka go bolela le go hlagiša dikgopolo ka go di bolela le go thala goba go ngwala go bontšha go gopola le go kwešiša.
- Go bapala (Go itšhidulla): Go ithuta ka dipapadi go akaretša ge barutwana ba ithuta ka go itšhidilla le go bapala. Barutwana ba šomiša mebele ya bona le dikwi tša bona go kgoma go kwešiša le go dira mešongwana.
- Lotšiki/tlhaologanyo (Dipalo): Go ithuta ga tlhaologanyo go akaretša go akanya le go hlatholla tshedimošo. Barutwana ba tla šomiša tlhaologanyo go ithuta dilo tše di mpsha.
- Laego (Go tswalana): Go ithuta ka leago go akaretša go ithuta mmogo le bangwe. Barutwana ba bangwe ba ithuta bokaone ka dihlopha goba le bagwera.
- Ka noši (Bowena): Go ithuta ka noši ke go ithuta o le tee. Ba rutwana ba bangwe ba kgona go ithuta le go kwešiša ge ba dira mošomo ka noši.
- Go rata tlhago (Tlhago): Barutwana ba bangwe ba ithuta bokaone ge ba le ka ntle ba šoma ka tlhago. Ba šoma ka go nyakišiša le go itemogela tlhago bjalo ka diphoofolo, dirapa tša diphoofolo, dirapana goba go hlokomela tikologo.

Barriers to learning maths

A **barrier to learning** is anything that prevents a child from being able to learn effectively. Barriers can be linked directly to the child (intrinsic), for example, cognitive impairment, grief or a broken arm. Barriers can also be outside of the child (extrinsic), for example, poverty, neglect or an overcrowded classroom.

Language is a very important learning tool. In South Africa this often presents as both an intrinsic and extrinsic barrier to learning, particularly where a child's home language is different from the language of teaching and learning.

Many children experience one or more barriers to learning. They may need more practice and support than other learners do. Barriers to learning are factors that make it difficult for some learners to learn maths. Examples of barriers are shown in the following diagram.

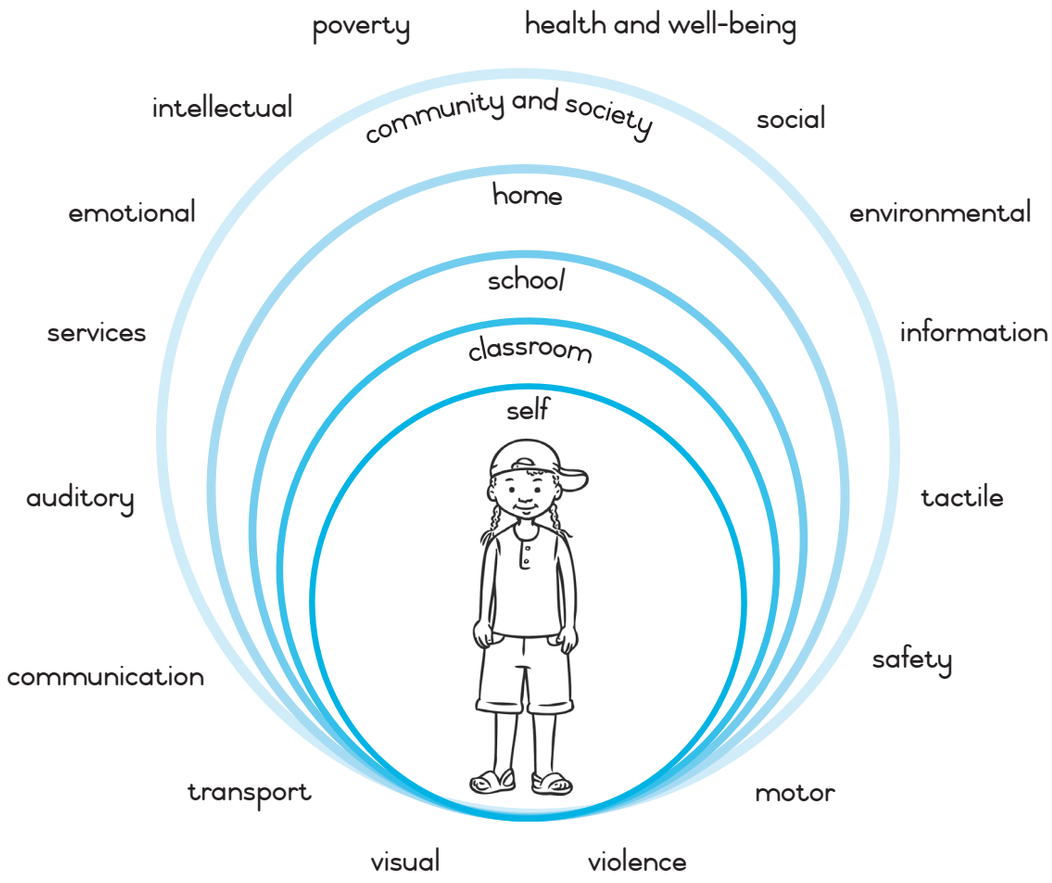


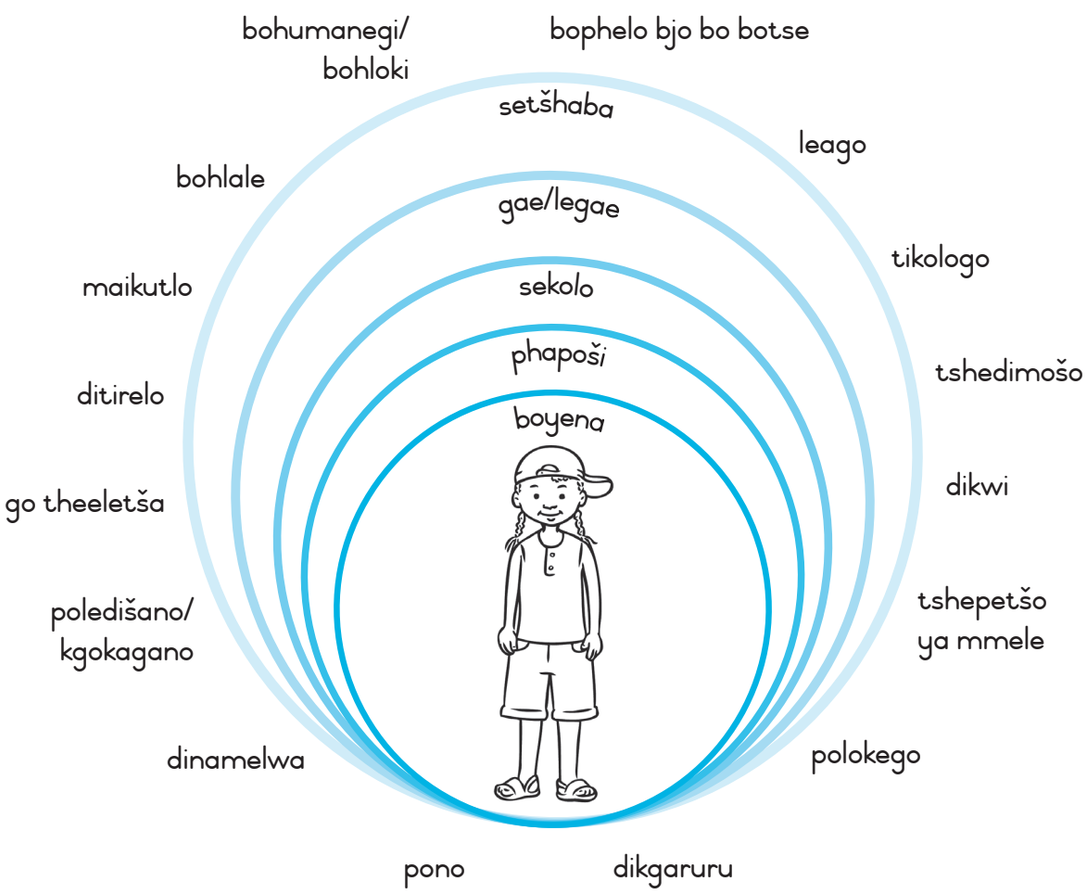
Figure 29 Barriers to learning

Mapheko a go ithuta dipalo

Mapheko a go ithuta ke se sengwe le se sengwe seo se šitišago morutwana go ithuta ka katlego. Mapheko a tswalantšhwa le morutwana (boyena), go fa mohlala go ba le mathata a go kwešiša dithutwana, motlhako goba go gobala. Mapheko a mangwe a ka tšwa ka ntle (leago), go fa mohlala bohumanegi, go hlokomologwa goba phapoši ya bana ba bantši go feta tekano.

Polelo ke setlabela se segolo sa go ruta le go ithuta. Afrika-Borwa polelo e na le go tliša mapheko a ka ntle le a ka gare kudu ge e le gore polelo ya morutwana e fapana le polelo ya go ruta le go ithuta.

Barutwana ba bantši ba itemogela lepheko le tee goba a mmalwa ka nako ya dithutwana. Barutwana ba mohuta woo ba hloka thekgo le mešongwana ya tlaleletšo gore ba kgone go ba legatong le tee le bamphato. Mapheko a hlola gore barutwana ba bangwe ba palelwe ke go kwešiša thuto ya dipalo. Mehlala ya mapheko a thuto a ka bonwa seswantšhong se se latelago.



Seswantšho sa 29 Mapheko a go ithuta

In practice ...

Some of the ways in which you can include all learners in your Grade R classroom are the following:

- Plan your lessons, activities and materials to make them suitable for the needs of different learners, e.g. a maths problem based on a picture might need to include a detailed description in order to help a learner to focus on the important aspects of the picture.
- Use many different practical activities with real objects.
- Allow learners more time and support to complete activities, to think and/or to answer questions, if they need it.
- It may be helpful to discuss, with a colleague or the school support team, the level you are working at with a learner to make sure you are offering him/her the best support possible. You may also need to follow up with the child's parents or caregivers and the district-based support team to provide the learner with all possible opportunities for learning and development.

Schools must ensure that all classrooms and teachers have adequate and appropriate resources to accommodate all the learners, despite barriers to learning. This includes:

- teachers trained to identify barriers to learning
- diverse teaching strategies
- an adequate classroom set up
- managed class size
- classroom assistants.

In practice ...

- Screen all learners when they are admitted to Grade R and record your findings on a Learner Profile according to the national policy on Screening, Identification, Assessment and Support (SIAS) for all learners.
- Develop an Individual Support Plan (ISP) for any learners experiencing barriers to learning. This information should be shared with the parents and/or caregivers so that they are aware of any additional needs and the support plan for their child.
- Collaborate with the School Based Support Team to provide the necessary support. A learner is referred to the District Based Support Team if additional support is required.

Go ikatiša ...

Mokgwa wa go akaretša barutwana ba Mphato wa R ka moka:

- Kgonthišiša gore dithuto, mešongwana le dithušathuto di šetša dinyakwa tša barutwana, mohl. bothata ba dipalo bjo barutwana ba swanetšego go bo rarolla bo swanetše go sepelelana le diswantšho le tlhalošo.
- Šomiša mešongwana ya go fapana go ruta thuto ka dilo tša nnete.
- Thekga barutwana ka go oketša nako ya go dira mešongwana ge go hlokega, ba fe nako ya go gopola le go araba dipotšiso ge ba e hloka.
- Go ka ba bohlokwa go rerišana le bašomimmogo ka thušo le thekgo yeo marutwana a e hlokago. Morutiši a ka bolela gape le batswadi ba ngwana goba bao ba mo hlokomelago go kgonthišiša gore ngwana o hwetša thekgo le thušo yeo e tlago tšwetšapele dibaka tša go ithuta.

Dikolo di swanetše go kgonthišiša gore diphaphoši ka moka di na le barutiši le dithušathuto tšeo di amanago le dinyakwa tša barutwana go akaretša le barutwana bao ba nago le mapheko a go ithuta. Go swana le:

- barutiši bao ba kgonago go lemoga mapheko a go ithuta barutwaneng
- mekgwa ya go fapana ya go ruta
- peakanyo ya makgonthe ya phapoši
- taolo palo ya barutwana ka phapošeng
- bathušabarutiši.

Go ikatiša ...

- Leka barutwana ka moka bao ba thomago Mphato wa R dira lenaneo go latela Tsebišo ya Barutwana ya go Tlhahloba, Tsebišo, Teko le Thekgo (Screening, Identification, Assessment and Support (SIAS)).
- Hlama Lenaneothekgo la Barutwana (Individual Support Plan (ISP)) leo le tlogo thuša barutwana bao ba nago le mapheko a go ithuta. Tšeo di tšwelelago lenaneong leo di ka ahlaahlwa le batswadi goba bao ba hlokomelago ngwana gore le bona ba kgathe tema ka go thuša ngwana.
- Ge sekolo se na le Sehlopha sa Sekolo sa Thekgo šomiša ditirelo tša mohuta woo go thekga barutwana. Ge sekolo se hloka ditirelo, bothata bja morutwana bo ka išwa go Sehlopha sa Thekgo sa Selete sa go kgonthišiša gore morutwana o abelwa thušo ya maleba.

Perceptual and motor development

The development of perceptual and motor skills in young learners is extremely important in laying a foundation for all future maths development and learning. Sensory perception means using the senses to get information about the environment. Sensory perceptual skills are important for learning maths because they help us understand:

- the way things are linked
- similarities and differences
- size, shape and pattern
- space and position
- symbols and their meanings.

Perceptual skills allow us to make sense of the world around us. Sensory information is collected by our five senses, for example, what our eyes see, ears hear, skin feels, tongue tastes and nose smells.

This information is sent to our brain. The brain processes, organises and remembers this information so that we can use it later for everyday activities, such as reading, drawing, writing, cutting, completing puzzles, completing maths problems, enjoying a story, dressing, finding our shoes in the cupboard, singing, as well as many other skills.

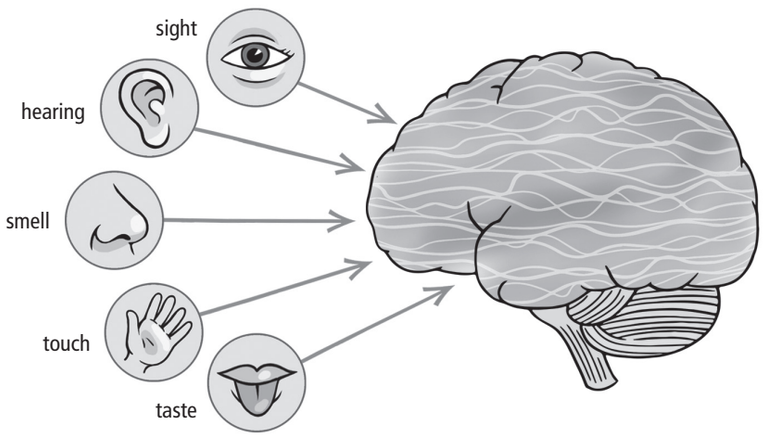


Figure 30 Our five senses

In practice ...

Observe learners playing outside and inside with different equipment.

Can they:

- tell the difference between different sounds, different words?
- spot the difference between two pictures or groups of objects?
- remember what they have seen and heard?
- repeat a list of words or numbers in the correct order?
- respond to different sounds, their names, instructions?
- feel the difference between smooth and rough?
- taste the difference between sweet and sour while blindfolded?

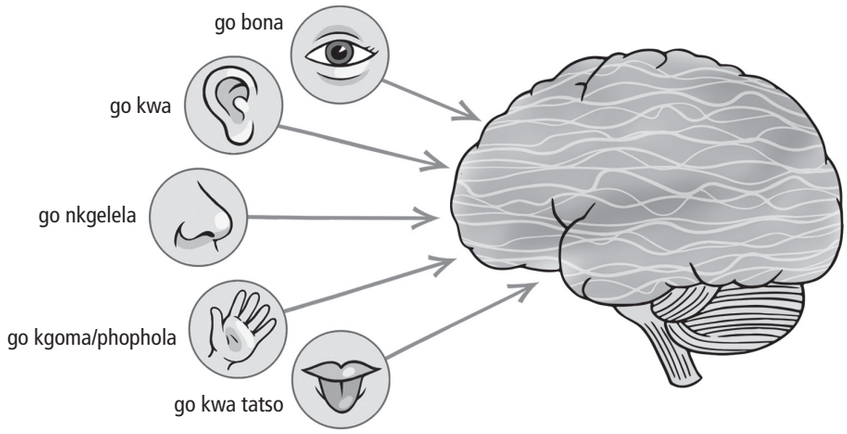
Kgopolo le tshepetšo ya ditho tša mmele

Kgodišo ya monagano le tshepetšo ya ditho tša mmele di bohlokwa go aga motheo wa barutwana wa go ithuta dipalo. Kgopolo ya dikwi e bolela go šomiša dikwi go kwešiša le go hwetša tshedimošo ka tikologo. Kgopolo le kgodišo ya dikwi e bohlokwa gomme e thuša bana ka tše latelago ge ba ithuta dipalo:

- ka mokgwa woo dilo di tswalana ka gona
- ditshwano le diphapano
- saese/bogolo, sebopego le phethene
- sebaka le boemo
- leswao le tlhalošo.

Go gopola go thuša bana go kwešiša tšeo di hlagago tikologong ya bo bona. Ba hwetša tshedimošo ka dikwi, mohl. seo mahlo a bona a se bonago, ditsebe di se kwago, letlalo le se kwago, tatso ka leleme le mokgo ka dinko.

Tshedimošo e išwa bjokong. Bjoko bja šila, beakanya le go gopola tshedimošo gore e tle e kgone go e šomiša ka moso ge ba dira mešongwana bjalo ka go bala, go thala, go ngwala, go sega, go feleletša mararankodi, go rarolla dipalo, go ipshina ka kanegelo, ge ba apara, go hwetša dieta ka khabotong, go opela le mehuta e farologaneng ya bokgoni.



Seswantšho sa 30 Dikwi tše hlano tša rena

Go ikatiša ...

Hlokomela barutwana ge ba bapala ka ntle goba ka phapošeng ka dibapadišwa tša go fapana.

Naa barutwana ba:

- tseba phapano gare ga medumo le mantšu?
- šupa phapano magareng ga dilo goba diswantšhong?
- gopola seo ba se bonego goba ba se kwelego?
- bušeletša mantšu goba dinomoro ka tatelano ya maleba?
- lemoga/latela medumo, maina le ditaelo?
- lemoga phapano magereng ga thelelo le makgwakgwa?
- hlatha tatso ya bodila le bose (swikiri) ge ba tswaletšwe mahlo?

Motor skills are actions that involve using our muscles. We use the big muscles in our bodies for gross motor activities, e.g. kicking a ball, running and jumping. We use smaller muscles for fine motor activities, e.g. cutting, writing and drawing.

Sensory perceptual motor development includes the following:

- visual perception
- auditory perception
- tactile perception
- kinaesthetic perception.

Grade R Maths recognises the importance of these skills for the development of maths concepts in Grade R learners.

Visual perception

Visual perception is the ability of the brain to use what the eyes see and to interpret this information. Visual perception skills are important for manipulating objects, drawing, reading and writing in maths.

Visual discrimination

Visual discrimination is the ability to see similarities and differences between objects. For example, to recognise what is the same and what is different between 2-D shapes, such as a picture of a square and a rectangle.

Visual motor coordination

Visual motor coordination is the ability of the eyes, brain and body muscles to work together to perform actions. In maths, it is important for activities, such as handling objects, drawing and writing.

Activities that help develop visual motor coordination include:

- ball and beanbag games
- using building blocks
- playing with objects that roll or slide
- drawing patterns
- cutting and pasting
- threading.

Visual closure

Visual closure is the ability to complete objects, pictures or drawings that are incomplete. In other words, the learner is able to recognise or identify a whole object even though the total picture is incomplete. Learners who struggle with visual closure will, for example, find it difficult to complete puzzles. They may also have difficulty describing what is missing in a picture that shows only the right side of the face or body, or completing the picture.

Tshepetšo ya mmele e akaretša tshepetšo ya mešifa. Bana ba šomiša mešifa go sepetša ditho tša mebele ya bona, mohl. go raga kgwele, go kitima le go fofa. Ba šomiša mešifa go dira dilo tše nnyane, mohl. go sega matlakala, go ngwala le go thala.

Kgodišo ya go hlokomela dikwi e akaretša:

- temogo ya pono/go bona
- temogo ya go kwa
- temogo ya go kgoma
- temogo ya go itšhidulla.

Grade R Maths e hlokomela bohlokwa bja bokgoni le ntšhetšopele ya dithuto tša dipalo go barutwana ba Mphato wa R.

Temogo ya pono/go bona
Temogo ya go bona ke bokgoni bja bjoko go šomiša seo mahlo a se bonago go sekaseka tshedimošo. Temogo ya go bona e bohlokwa go ithuta go thala, go bala le go ngwala dipalo.

Temogo ya go bona

Temogo ya go bona e thuša ngwana go kgona go bona dilo tšeo di swanago le tšeo di sa swanego. Go fa mohlala, go bona gore ke eng tšeo di swanago gomme ke dife tšeo di fapanago sekwereng goba khutlotharong ya 2-D.

Temogo ya tshepetšo ya mešifa

Temogo ya tshepetšo ya mešifa ke bokgoni bja mešifa ya mahlo le bjoko go šoma mmogo. Ge bana ba ithuta dipalo se se bohlokwa go dira mešongwana ya go swana le go thala le go ngwala.

Mešongwana yeo e ka thušago pono ya tshepetšo ya mešifa e akaretša:

- dipapadi tša kgwele goba mekotla ya dinawa
- go šomiša dipoloko tša go aga
- go bapala ka dilo tšeo di thelelago goba di kgokologago
- go thala diphethene
- go ripa le go kgomaretša
- go roka.

Tlogelo

Tlogelo ke bokgoni bja go feleletša dilo tšeo di tlogetšwego, bjalo ka diswantšho goba dithalwa. Ka mantšu a mangwe, morutwana o kgona go bona seswantšho ka botlalo le ge dilo tše dingwe di tlogetšwe. Barutwana bao ba palelwago ke tlogelo, mohlala ba ka hwetša bothata bja go feleletša mararankodi. Ba ka ba le bothata bja go hlaloša tšeo di tlogetšwego seswantšhong bjalo ka lehlakore la go ja la sefahlego, ditho tša mmele, goba go feleletša seswantšho.

Form constancy and form perception (recognition)

Form constancy is the ability to tell the difference between forms and symbols, even though their size and position might change. In other words, it means being able to recognise the constant characteristics of something. For example, a circle is a circle because of its shape. It remains a circle even if it is blue, purple, large or small, in a book or drawn in the sand. In the same way, the number symbol '5' remains the same whether it is written in different colours or in big or small writing.

Visual figure-ground perception

Visual figure-ground perception is the ability to recognise the difference between objects that are in the foreground and those that are in the background. You can help learners to develop this skill by asking them to identify particular objects in a picture or in a collection of objects, e.g. 'Find the girl with red pants in the picture' or 'Find the box with oranges in the picture' or 'Find your shoes in this pile of all of our shoes'.

Visual sequencing

Visual sequencing is the ability to place objects or items in the correct order after looking at them or observing them. Help learners to develop this skill by asking them to look at a pattern of different coloured beads on a string and then repeat the pattern themselves.

Visual motor integration

Visual motor integration is the ability to make sense of visual information and then use it in another activity that uses motor skills. Learners use visual information and fine motor skills when, for example, they copy numbers or draw objects in front of them.

Visual conceptualising

Visual conceptualising is the ability to make pictures in your mind (mental images) based on experiences, observations or other visual information. Learners use this skill when, for example, they draw pictures of something like a room in their homes or of their families.

Go tseba dilo le temogo ya tšona

Temogo e bontšha bokgoni bja go tseba phapano magareng ga selo (sebopego) le leswao, le ge bogolo bja selo seo bo ka fetoga. Ka mantšu a mangwe, bokgoni bja go tseba selo. Go fa mohlala, sediko ke sediko ka lebaka la sebopego sa sona. Ke sediko le ge e ka ba se se tala, khubedu, se segolo goba se sennyane, ka pukung goba e thwadilwe. Ka mokgwa woo '5' e lego hlano ge e ngwadilwe ka maletere a magolo goba a mannyane goba ka mmala o mo tala goba o mo khubedu.

Temogo ya boemo

Pono ya boemo e thuša barutwana go bona dilo tšeo di lego ka pele le tšeo di lego ka morago. O ka thuša barutwana go aga bokgoni bjo ka go ba botša gore ba bolela dilo tšeo di lego seswantšhong, mohl. 'Hwetša mosetsana yo a aperego roko e khubedu' goba 'Hwetša lepokisi la dimamune' goba 'Hwetša dieta tše diso'.

Temogo ya tatelano

Temogo ya tatelano e bolela bokgoni bja go lemoga tatelano ya dilo ka go di lebelela goba go di hlokomela. O ka thuša barutwana go aga bokgoni bjo ka go ba kgopela go lebelela le go šetša ka mokgwa woo dipheta di beakantšwego ka gona.

Temogo ya tshepetšo ya pono

Tshepetšo ya pono ke bokgoni bja go šomiša seo o se bonago/bonego go dira mošomo. Barutwana ba šomiša seo ba se bonago go dira mošomo wa matsogo bjalo ka go kopolla dinomoro, go thala dilo tšeo di lego ka pele ga bona.

Temogo ya pono

Temogo ya pono e bolela bokgoni bja go itlhamela diswantšho ka monagano (diswantšho tša monagano) tšeo di sepelago le maitemogelo a bona, goba tšeo ba di bonego goba ba di kwelego. Barutwana ba šomiša bokgoni bjo ge ba thala selo se sengwe bjalo ka mopete ka phapošeng goba ba maloko a lelapa la bo bona.

Auditory perception

Auditory perception is the ability of the brain to use what the ears hear and to interpret this information. Auditory perception is important for developing language skills, following and understanding instructions as well as sharing and discussing ideas and information.

Auditory discrimination

Auditory discrimination is the ability to recognise similarities and differences in sound, e.g. being able to hear the difference between the words 'rectangle' and 'triangle'.

Auditory memory

Auditory memory is the ability to store and remember something you have heard. Learners use this skill when they follow a set of instructions or repeat a number sequence that is read aloud, e.g. 4, 6, 8, 1.

Auditory figure-ground perception

Auditory figure-ground perception is the ability to recognise or isolate a sound from other sounds. It is also the ability to focus on a particular sound separately from background noise. This skill allows learners to focus on what someone in their group is saying without being distracted by the noise of other groups talking.

Auditory sequencing

Auditory sequencing is the ability to remember the objects or items in the correct order after hearing a list. For example, the order of the numbers from 1 to 10 or months of the year. Asking learners to describe a few of the day's events in order helps to develop this skill.

Tactile and kinaesthetic perception

Tactile perception is the ability to use the sense of touch to explore your environment. Kinaesthetic perception is the awareness of body movements and position in space. They work together to provide the brain with information. An activity that helps to develop learners' tactile and kinaesthetic perception is to ask learners to shut their eyes, then to feel and describe a number of different objects in a bag or pillowcase. For example, they could say it has corners or it is round.

Temogo ya go kwa
Temogo ya go kwa ke bokgoni bja bjoko go šomiša seo tse e ekwago le go hlatholla tshedimošo ye. Go kwa go bohlokwa ka gore go aga tšwetšopele ya polelo, go kwešiša ditaelo, le go abelana dikgopolo le go ahlaahla dikgopolo le ditsebišo.

Go kwa ka go kgetholla

Go kgetholla seo o se kwago ke bokgoni bja go lemoga medumo ya go swana le ya go fapana, mohl. go tseba diphapano magareng ga mantšu 'khutlo' le 'sediko'.

Go gopola seo o se kwelego

Go gopola seo o se kwelego ke bokgoni bja go boloka le go gopola seo o se kwelego. Barutwana ba šomiša bokgoni bjo go latela ditaelo le go bušeletša tatelano ya dinomoro ka go di balela godimo, mohl. 4, 6, 8, 1.

Temogo ya go kwa ka kgopolo

Temogo ya go kwa ka kgopolo ke bokgoni bja go lemoga phapano ya medumo. Ke bokgoni bja go kwa modumo wo itšego le ge o le kgole/ka morago. Bokgoni bjo bo thuša barutwana go kwa ge batho ba bantši ba bolela goba go kwa dintlha tša bohlokwa ba sa tshwenywe ke lešata ge ba šoma ka dihlopha.

Go kwa ka tatelano

Go kwa ka tatelano ke bokgoni bja go gopola tatelano ya dilo ka morago ga go kwa lenaneo la tšona. Go fa mohlala, go gopola go bala 1 go fihla ka 10 goba maina a dikgwedi tša ngwaga. Goba go gopola le go bolela ditiragalo tša letšatši ka tatelano.

Temogo ya go kwa ka go phopholetša/kgwatha
Temogo ya go kwa ka go phopholetša/kgwatha ke bokgoni bja go tseba dilo tšeo di lego tikolong ka go di phopholetša. Ke bokgoni bja go lemoga sebaka seo mmele o lego go sona gomme wa romela molaetša bjokong. Mokgwa wa go ruta bana bokgoni bjo ke go ba diriša mošomo ba tswaletše mahlo. O ka ba kgopela gore ba tope dilo ka gare ga mokotla, o ba tswaletše mahlo, gomme ba bolele gore ke eng, goba ba bolele palo ya dilo tšeo di lego ka mokotleng. Go fa mohlala, ba ka bolela sebopego sa dilo tšeo ka go di phopholetša.

8. The practice principle

Definition

Learners should have plenty of time to practise new skills and knowledge. When learners get regular practice in what they have already learnt, they get better at it and become more confident. They enjoy repetition and practice. The Grade R teacher should provide repeated opportunities for learners to practise and improve new skills.

In practice ...

- Counting and problem solving are done every day as regular activities – even if the focus is on other concepts, such as shape or measurement.
- Provide varied materials and tasks so that learners can practise newly learnt skills in different ways.
- Maths concepts can also be practised across the curriculum, for example, in Home Language and Life Skills activities, such as stories, drama, painting and obstacle courses.

More about the practice principle

Using rhymes, songs and stories

Singing songs and repeating rhymes together, and sharing stories is an enjoyable, non-competitive way of learning. Children learn maths concepts and skills when they repeat rhymes and songs, and listen to stories again and again. They learn and practise:

- number names (e.g. 'There were three little meerkats …')
- the order of number names
- forward and backward counting
- counting groups of things
- informal calculations, e.g. adding and subtracting
- the sequence of events.

In practice ...

- Add movement, rhythm and music to songs, rhymes and stories to make them even more enjoyable. Experiences that use all our senses help learners to remember things more easily.
- Encourage parents and other caregivers to learn the stories, songs and rhymes you use with the learners. In this way, they become an important link for children between home and school activities.

8. Setheo sa itlwaetša

Tlhalošo

Barutwana ba na le nako ye ntši ya go ithuta dilo tše di mpsha bjalo ka bokgoni le tsebo. Barutwana ge ba ikatiša go dira selo seo ba ithutilego ba feletša ba se kgona gomme ba ba le boitshepo bja go dira selo seo ka moso. Ba thabela go bušeletša le go ikatiša go dira mošomo. Morutiši wa Mphato wa R o swanetše go ba diriša mošomo leboelela ka gobane se se ba thuša go aga go ikatiša mošomo le go aga mabokgoni a ma mpsha le boitshepo.

Go ikatiša ...

- Go bala le go rarolla dipalo go ka dirwa ka mehla – le ge thutwana di le mabapi le karolothuto ye nngwe bjalo ka tekolo goba dibopego.
- Go fa barutwana dithušathuto tšeo di fapanego gore ba itlwaetše go dira mešongwana yeo.
- Dikarolothuto tša dipalo di ka rutwa go latela lenanethuto. Go fa mohlala, dithutwana tša Leleme la Gae le Mabokgoni a Bophelo bjalo ka dikanegelo, tiragatšo, go penta le go itšhidulla di ka šomišwa go ruta dipalo.

Tše dingwe tša go itlwaetša

Tšhomišo ya direto, dikoša le dikagelo

Go opela dikoša, bušeletša direto le go theeletša dikanegelo go thuša bana go ithuta ntle le phadišano. Barutwana ba ithuta dipalo ka go opela dinomoro goba go di reta le ka go theeletša dikanegelo leboelela. Ba ithuta:

- maina a dinomoro (mohl. 'Go na le mebutla ye meraro …')
- tatelano ya dinomoro le maina a tšona
- go balela pele le morago
- go bala dilo ka dihlopha
- go dira dipalo ka dilo tša ka mehla, mohl. go ntšha le go hlakanya
- tatelano ya ditiragalo.

Go ikatiša ...

- Lokela morethetho, dikoša, mmino le dikanegelo go dira gore bana ba rate thuto tša dipalo. Maitemogelo a go ithuta ao a šomišago dikwi tša go fapana a dira gore bana ba kwešiše le go ipshina ka dithuto.
- Hlohleletša batswadi goba bao ba hlokomelago bana go ithuta mešito, dikoša le dikanegelo gore ba kgone go di dira le bona ge ba le gae. Ka mokgwa woo ba fetoga kgokagano ya bohlokwa magareng ga mešongwana ya sekolo le ya gae.

Maths integration across the Grade R daily programme

Teachers need to make connections between maths, the daily routine and other subjects (e.g. Home Language and Life Skills), as well as between maths and learners' daily lives. Teachers should take advantage of all opportunities to practise maths skills.

In practice ...

Learners are more likely to show an interest in learning maths, and find it easier to understand, if they can see how maths has meaning and usefulness in their own lives. Teachers can help by doing the following:

- Being more aware of how maths is part of their own personal and professional lives.
- Showing learners how maths is used in daily life, e.g. when you use money to buy something.
- Integrating maths activities into other classroom and outdoors experiences, such as:
  - using ordinal numbers 'first', 'second' and 'third' when learners line up
  - referring to position and direction when learners are playing
  - talking about 'more' and 'less' when learners share fruit, bread and/or juice.
- Making connections with maths concepts, such as size, measurement, time, estimation, counting, comparisons, shape and/or distance when you read stories to the learners.

Teach maths concepts during the Grade R maths focus time and look for other opportunities to develop maths language and concepts throughout the day. This:

- helps learners develop an understanding of how different areas of knowledge are related
- ensures a more holistic or complete learning experience
- gives learners more opportunities to practise what they have learnt.

Tšhomišo ya dipalo lenaneo la ka mehla la Mphato wa R

Barutiši ba swanetše go dira kgokagano magare ga dipalo, mešongwana ya tšatši ka tšatši le dithuto tše dingwe (mohl. Leleme la Gae le Mabokgoni a Bophelo), le magareng ga dipalo le maphelo a barutwana a tšatši ka tšatši. Barutiši ba swanetše go šomiša monyetla wa go thuša barutwana go ikatiša ka dithuto tša dipalo.

Go ikatiša ...

Barutwana ba tla bontšha kgahlego ya go ithuta dipalo ge ba ka kgona go bona le go kwešiša bohlokwa bja dipalo maphelong a bona. Barutiši ba ka ba thuša ka go:

- Ba bontšha mohola wa dipalo maphelong a bona.
- Bontšha barutwana gore dipalo di šoma bjang maphelong a bona, mohl. ge ba šomiša tšhelete ge ba reka.
- Go hlakanya dithuto tša dipalo le mešongwana ye mengwe, bjalo ka:
  - go šomiša dinomoro bjalo ka 'botee', 'bobedi' le 'boraro' ge barutwana ba dutše ka go latelelana
  - laetša boemo le ditšhupetšo/ditaetšo ge ba bapala
  - bolela ka 'ntši' le 'mmalwa' ge barutwana ba abelana dienywa, senkgwa goba senomaphodi.
- Tswalanya mareo tša dipalo bjalo bogolo, kelo, nako, akanya, balela, bapetša, sebopego le bokgole ge o ba balela dikanegelo.

Ruta mareo a dipalo tša Mphato wa R ka go hlokomela gore o šomiša polelo ya dipalo ge o bolela le barutwana tšatši ka moka. Se se:

- thuša barutwana go kwešiša le go godiša tsebo le dithuto ya tše dingwe
- kgonthišiša gore barutwana ba ithuta ka kgonthe ka go phethagala
- fa barutwana sebaka sa go ikatiša ka tšeo ba ithutilego tšona.

SECTION 2

Mathematics in the Grade R Daily Programme

Introduction

The Grade R Maths programme has been developed to strengthen and support the Grade R Mathematics curriculum. Grade R Maths:

- includes and extends the CAPS Grade R Mathematics content outlined in the five Content Areas
- encourages inquiry-based learning by suggesting ways to extend learners' natural curiosity to explore their surroundings
- provides activities that encourage learners to investigate and explore maths concepts
- encourages teachers to talk with learners about their thinking and to help them express their ideas
- suggests ways for learners to plan, observe and gather information, and then to compare, sort, classify and interpret their findings
- provides appropriate materials and resources.

Mathematics Content Areas

Mathematics in the Foundation Phase (including Grade R) covers five Content Areas. Each Content Area contributes towards the learner developing specific maths knowledge and skills. The Content Areas are:

- Numbers, Operations and Relationships
- Patterns, Functions and Algebra
- Space and Shape (Geometry)
- Measurement
- Data Handling

You can find out more about each Content Area in the CAPS and in Section 3 of this guide (page 110).

Weighting of Mathematics Content Areas

CAPS suggests that the instructional time for Mathematics in Grade R should be 23 hours per week. However, CAPS does not provide a weighting or a breakdown for Grade R of the time that should be spent

KAROLO YA 2

Lenanephethagatšo la Tšatši ka Tšatši la Dipalo Mphatong wa R

Matseno

Lenaneo la *Grade R Maths* le hlametšwe go thekga lenanethuto la thuto ya Dipalo tša Mphato wa R. Lenaneo la *Grade R Maths* le:

- akaretša le go tšwetšapele diteng tša thuto ya ka gare ga SEPHOLEKE Dipalo tša Mphato wa R le go tšweletša Dikarolo tša Diteng tše hlano
- hlohleletša go ithuta ka go botšiša le go nyakišiša ka tšeo di lego tikologong
- fa barutwana sebaka sa go nyakišiša le mareo a dipalo
- hlohleletša barutiši go fa barutwana sebaka sa go hlagiša le go bolela tšeo ba di gopolago
- šišinya mekgwa yeo barutwana ba ka logago maano, hlokemelago le go kgoboketša tshedimošo gore ba kgone go tswalanya, fapanya, hlaola le go fahlela dikarabo tšeo ba di hweditšwego
- neelana ka dithušathuto tša maleba.

Dikarolo tša Diteng tša Dipalo

Dipalo tša Mphato wa fase/tlase (go akaretša Mphato wa R) di hlokomela Dikarolo tša Diteng tše hlano. Karolo ya Diteng ye nngwe le ye nngwe eo e thušago barutwana go aga tsebo le mabokgoni a dipalo. Dikarolo tša Diteng ke:

- Dinomoro, Tirišo le Tswalano (‘Dinomoro, Diophareišene le Ditswalano’)
- Dipatrone, Difankšene le Altšebra
- Sekgoba le Sebopego (Tšeometri)
- Kelo
- Tšhomišo ya Tshedimošo (‘Tšhomišo ya Data’)

O ka hwetša tšhedimošo ya tlaleletšo ya Karolothuto ye nngwe le ye nngwe mo SEPHOLEKE go Karolo ya 3 ya puku ye (letlakala 111).

Boima bja Dikarolo tša Diteng tša Thuto ya Dipalo

SEPHOLEKE se šišinya gore nako ya go ruta Dipalo Mphatong wa R e swanetše go ba diiri tše 23 ka beke. Le ge go le bjalo SEPHOLEKE ga se laetše gore nako e swanetše go arolwa bjang magareng ga Dikarolo

on each Content Area for each term. The weighting of Mathematics Content Areas serves two primary purposes:

- It gives guidance on the amount of time needed to address the content within each Content Area adequately.
- It gives guidance on how much weighting to give to the different parts of the Grade R Mathematics curriculum during assessment.

The Grade R Maths programme suggests an approximate weighting of the Content Areas. This is based on the following:

- All Content Areas are equally important even though the same amount of time might not be spent on each one.
- Some Content Areas need more time for concept development, e.g. Numbers, Operations and Relationships, and Space and Shape (Geometry).

The Grade R Maths programme focuses on a specific Content Area each week whilst ensuring consolidation and integration of new knowledge. The *Activity Guide* for each term organises the content and number of weeks around this weighting to ensure that the CAPS Content Area topics and key conceptual development are covered. The table below shows the number of content focus weeks needed for each Content Area each term.

Table 1 Number of weeks per Content Area for each term

Weighting of Grade R Mathematics Content							
Content Area	**Topic**	**Term 1 weeks**	**Term 2 weeks**	**Term 3 weeks**	**Term 4 weeks**	**Total number of weeks per year**	**Total % of time**
Numbers, Operations and Relationships	Counting Number recognition Number sense (relationships) Problem solving Calculations	3	4	5	5	17	42,5
Patterns, Functions and Algebra	Identify, copy, extend and create own patterns	1	1	1	1	4	10
Space and Shape (Geometry)	Position, orientation and view 3-D objects and 2-D shapes Symmetry	4	3	2	2	11	27,5
Measurement	Time	1				4	10
	Length		1				
	Mass			1			
	Capacity/Volume				1		
Data Handling	Collecting, sorting, representing and analysing objects/information	1	1	1	1	4	10
Total weeks		10	10	10	10	40	100

tša Diteng. Boima bja Dikarolo tša Diteng tša Thuto ya Dipalo go na le mehola e mebedi:

- Go fa tlhahlo ya go bontšha gore go nyakega nako ye kaakang go ruta Karolo ya Diteng ye nngwe le nngwe.
- Go fa tlhahlo ya kelo ya diteng kudu ka nako ya tekolo ya Dipalo Mphatong wa R.

Lenaneo la *Grade R Maths* le šišinya ka mokgwa woo Dikarolo tša Diteng di ka arolwago ka gona. Tše di ikaegile ka tše latelago:

- Dikarolo tša Diteng di lekana ka bohlokwa le ge tše dingwe di ka nyaka nako ye ntši go feta tše dingwe.
- Dikarolo tša Diteng tšeo di ka nyakago nako ye ntši ke Dinomoro, Tirišo le Tswalano, le Sekgoba le Sebopego (Tšeometri).

Lenaneo la *Grade R Maths* le šetša Karolo ya Diteng go ya ka fao di swanetšego go rutwa beke-ka-beke gomme di akaretša kgodišo le tswalano ya tsebo ye mpsha. *Pukutlhahlo ya Mešongwana* ya kotara e beakantše mešongwana go latela dibeke tšeo di šišintšwego go SEPHOLEKE go kgonthišiša gore Dikarolo tša Diteng ka moka di a rutwa. Nkatlapana yeo e lego ka fase e bontšha diteng le tekanyetšo ya Karolo ya Diteng yeo e swanetšego go dirwa ka beke go latela kotara.

Nkatlapana ya I Palo ya dibeke tša Karolo ya Diteng ka kotare

Kelo ya Karolo ya Diteng ya Dipalo Mphatong wa R

Karolo ya Diteng	Hlogotaba	Kotara ya 1 dibeke	Kotara ya 2 dibeke	Kotara ya 3 dibeke	Kotara ya 4 dibeke	Palomoka ya dibeke tša ngwaga	Palo-moka % ya nako
Dinomoro, Tirišo le Tswalano	Go bala/balela Temogo ya dinomoro Palokwešišo (go tswalana) Tharollo ya bothata Palelo	3	4	5	5	17	42,5
Dipatrone, Difankšene le Altšebra	Šupa, kopolla, katološa le go hlamela diphethene	1	1	1	1	4	10
Sekgoba le Sebopego (Tšeometri)	Boemo, pekanyo le pono, dibopego tša 3-D le 2-D le Tekanyetšo	4	3	2	2	11	27,5
Kelo	Nako	1				4	10
	Botelele		1				
	Boima			1			
	Motano/Bolumu				1		
Tšhomišo ya Tshedimošo	Kgoboketša, hlaola, emela le hlopholla kemelo le go sekaseka dilo/tshedimošo	1	1	1	1	4	10
Palomoka ya dibeke		10	10	10	10	40	100

Maths and the Grade R daily programme

The daily programme

The Grade R daily programme is a timetable that has its own unique features. It is not the same as the timetables used in other grades in the school. It provides for the learners' developmental needs whilst addressing CAPS policy requirements.

The Grade R daily programme diagram (Figure 31) includes a breakdown of approximate time as a guide for teachers. These times need to be flexible in Grade R, but there should be:

- 4 hours and 36 minutes per day (or 23 hours per week) of learning and teaching contact time
- activities that cover three subjects: Home Language (10 hours per week), Mathematics (7 hours per week) and Life Skills (6 hours per week).

Each of the subjects has a daily focused session and is also integrated into other activities throughout the day. The daily programme in Figure 31 highlights focused maths time as well as opportunities for incidental maths learning. Maths learning takes place in:

- whole class sessions where learners interact as one large group with the teacher
- small group teacher-guided sessions where up to eight learners work with the teacher
- small group sessions where up to eight learners work independently on activities at tables (workstations)
- free choice sessions where learners choose for themselves what they would like to do from a selection of activities set out by the teacher (own choice).

Lenanephethagatšo la tšatši ka tšatši la dipalo Mphatong wa R

Lenanephethagatšo la tšatši ka tšatši

Lenanephethagatšo la tšatši ka tšatši la Mphato wa R ke tšhupadipaka yeo e ikgethilego. Ga e swane le ditšhupadipaka tše dingwe tšeo di šomišwago mephatong ye mengwe. E šetša dinyakwa tša barutwana ebile e latela lenanethuto go ya ka SEPHOLEKE.

Lenanephethagatšo la tšatši ka tšatši la Mphato wa R (Seswantšho sa 31) le akaretša nako go hlahla barutiši. Nako e ka fetoga, efela tšhišinyo ke:

- diiri tše 4 le metsotso e 36 ka letšatši (goba diiri tše 23 ka beke) ya go ruta le go ithuta
- mešongwana ya dithuto tše tharo: Leleme la Gae (diiri tše 10 ka beke), Dipalo (diiri tše 7 ka beke) le Mabokgoni a Bophelo (diiri tše 6 ka beke).

Thuto ye nngwe le ye nngwe e abetšwe nako ya yona yeo e amantšhwago le mešongwana ye mengwe. Lenanephethagatšo la tšatši ka tšatši, Seswantšho sa 31, le bontšha nako ya Dipalo le dibaka/dikgoba tša go ruta dipalo tša tlaleletšo. Go ithuta dipalo go direga ka:

- nako ya go ithuta bjalo ka phapoši ka moka, moo barutwana ba ithutago bjalo ka sehlopha le morutiši wa bona
- nako ya sehlopha se se nnyane sa maloko a go se fete seswai tšeo di hlahlwago ke morutiši
- nako ya sehlopha se se nnyane sa maloko a go se fete seswai seo se šomago ntle le thekgo ya morutiši, sehlopha se ka šoma (tafoleng ya mešongwana)
- nako ya mešongwana ya (go ikgethela) moo barutwana ba kgethago mešongwana yeo ba e ratago, le ge go le bjalo go bohlokwa go lemoga gore mešongwana yeo e tla be e šišintšwe ke morutiši.

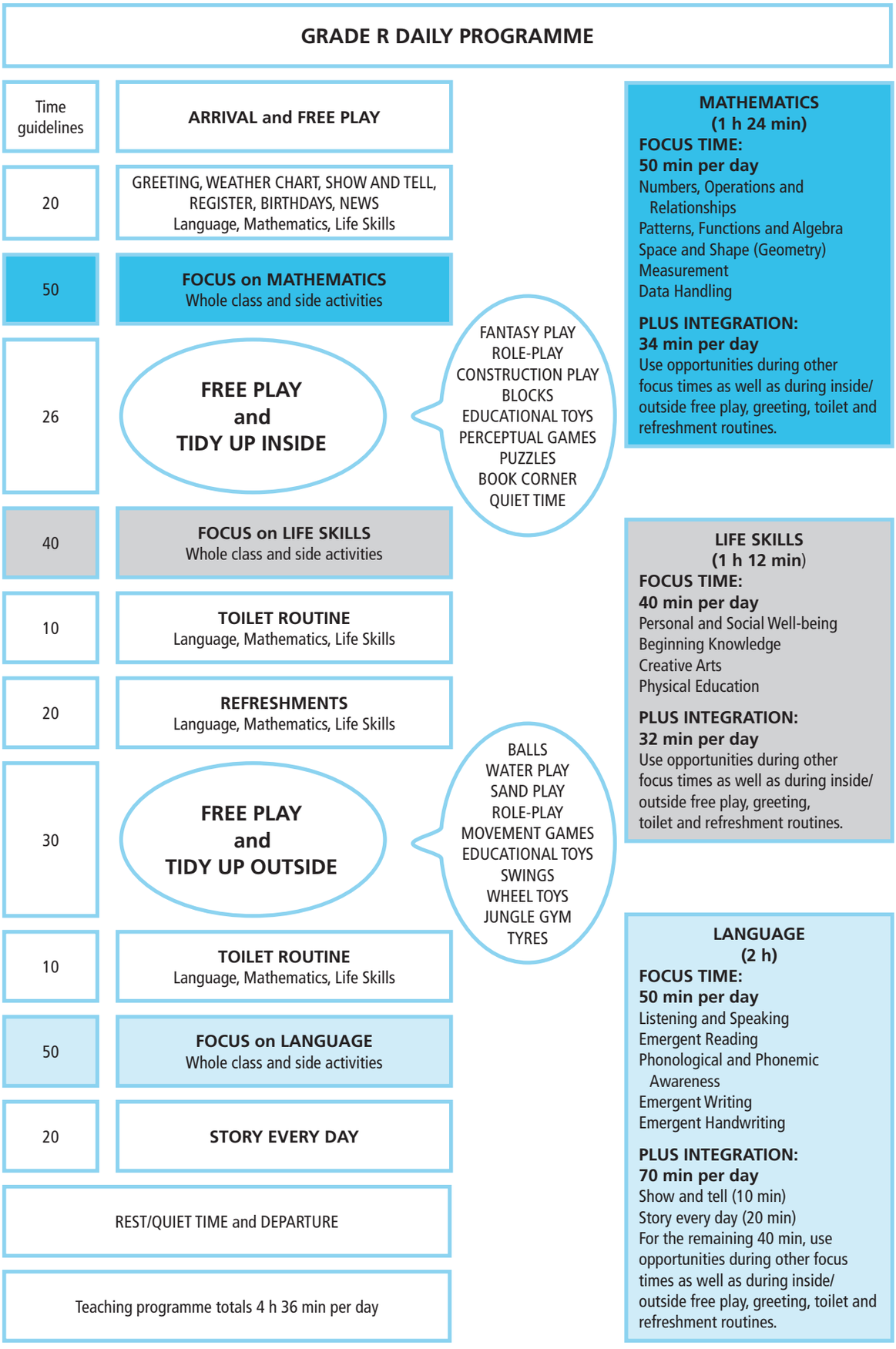


Figure 31 GDE exemplar Grade R Daily Programme

LENANEPHETHAGATŠO LA TŠATŠI KA TŠATŠI MPHATO WA R

Tšhupatsela ya dinako	
	Go FIHLA le go BAPALA ka tokologo
20	DITUMEDIŠO, TŠHATE YA BOSO, GO LAETŠA LE GO BOLELA, RETŠISITARA, MATŠATŠI A MATSWALO, DITABA Leleme, Dipalo, Mabokgoni a Bophelo
50	**NEPIŠO/TSEPELELO go DIPALO** Phaposi ka moka le mešongwana ya ka thokwana
26	**GO BAPALA KA TOKOLOGO le GO HLWEKIŠA** THALOKO YA BOITHABIŠO BAPALA KAROLO (YE E ITŠEGO) PAPADI YA GO AGA DIPOLOKO DIBAPADIŠWA TŠA THUTO DIPAPADI TŠA TEMOGO MARARA KHUTLO YA DIPUKU NAKO YA GO ITHEELETŠA/ HOMOLA
40	**NEPO/TSEPELELA go MABOKGONI A BOPHELO** Phaposi ka moka le mešongwana ya ka thoko
10	**GO ITHUTA TSHWAMARE** Leleme, Dipalo, Mabokgoni a Bophelo
20	**NAKO YA GO IKHUTŠA** Leleme, Dipalo, Mabokgoni a Bophelo
30	**DITHALOKO GO LOKOLOGA le GO HLWEKIŠA KA NTLE** DIKGWELE GO BAPALA KA MEETSE GO BAPALA KA SANTA BAPALA KAROLO (YE E ITŠEGO) GO ITŠHIDULLA DIBAPADIŠWA TŠA THUTO TEKU DIBAPADIŠWA TŠA MAOTWANA PAPADI YA GO NAMELA MABILI/ MAOTWANA
10	**GO ITHUTA TSHWAMARE** Leleme, Dipalo, Mabokgoni a Bophelo
50	**NEPO/TSEPELELA go LELEME** Phaposi ka moka le mešongwana ya ka thoko
20	**KANEGELO YA KA MAHLA**
KHUTŠA/NAKO YA HOMOLA le GO TLOGA/GO YA GAE	
Lenaneo la go ruta ka letšatši palomoka ya nako ke diiri tše 4 le metsotso e 36	

DIPALO
(iri e 1 le metsotso e 24)
NAKO:
Metsotso e 50 ka letšatši
Dinomoro, Tirišo le Tswalano
Dipatrone, Difankšene le Altšebra
Sekgoba le Sebopego (Tšeometri)
Kelo
Tšhomišo ya Tshedimošo

GO TSWALANYA DITHUTO:
metsotso e 34 ka letšatši
Sebaka sa tsepelelo le nako ya go bapala ka ntle/ka phapošeng, ditumedišo, go itlwaetša tshwamare le go ikhutša.

MABOKGONI A BOPHELO
(iri ye 1 le metsotso e 12)
NAKO:
metsotso e 40 ka letšatši
Thutaphelo
Tsebo ya go Thoma
Bokgabo bja Boitlhamelo
Thutatšhidullammele

GO TSWALANYA DITHUTO:
metsotso e 32 ka letšatši
Sebaka sa tsepelelo le nako ya go bapala ka ntle/ka phapošeng, ditumedišo, go itlwaetša tshwamare le go ikhutša.

LELEME
(diiri tše 2)
NAKO:
metsotso e 50 ka letšatši
Go Theeletša le go Bolela
Go Ithuta go Bala
Go Ithuta Popopolelo/Go Tseba Medumo
Go Ithuta go Ngwala
Go Ithuta Mongwalo

GO TSWALANYA DITHUTO:
metsotso e 70 ka letšatši
Bontšha o bolele (metsotso e 10)
Kanegelo ya ka mehla (metsotso e 20)
Metsotso e 40 ya go šala sebaka sa tsepelelo le nako ya go bapala ka ntle/ka phapošeng, ditumedišo, go itlwaetša tshwamare le go ikhutša.

Grade R Mathematics time allocation

The time allocated to Grade R Mathematics is seven hours per week and 1 hour 24 minutes (84 minutes) per day. Each day this time is made up of:

- 50 minutes of focused maths learning and teaching activities
- 34 minutes of integrated learning, structured activities and independent learner activities inside and outside the classroom.

Figure 32 shows a suggestion of how you could use the daily allocation of 1 hour 24 minutes.

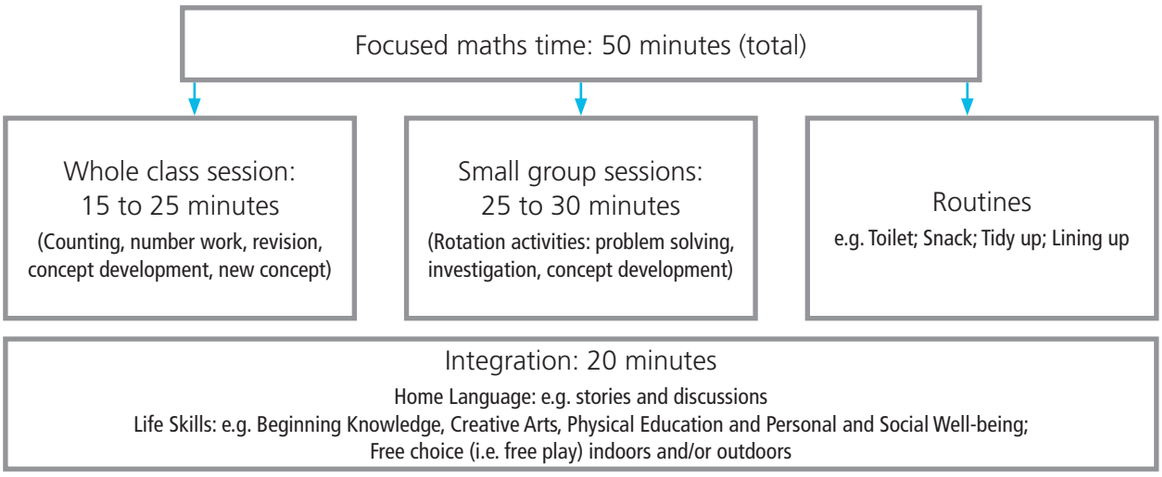


Figure 32 Suggested use of daily maths time

Figure 33 shows how each day's maths focus time is structured in Grade R Maths.

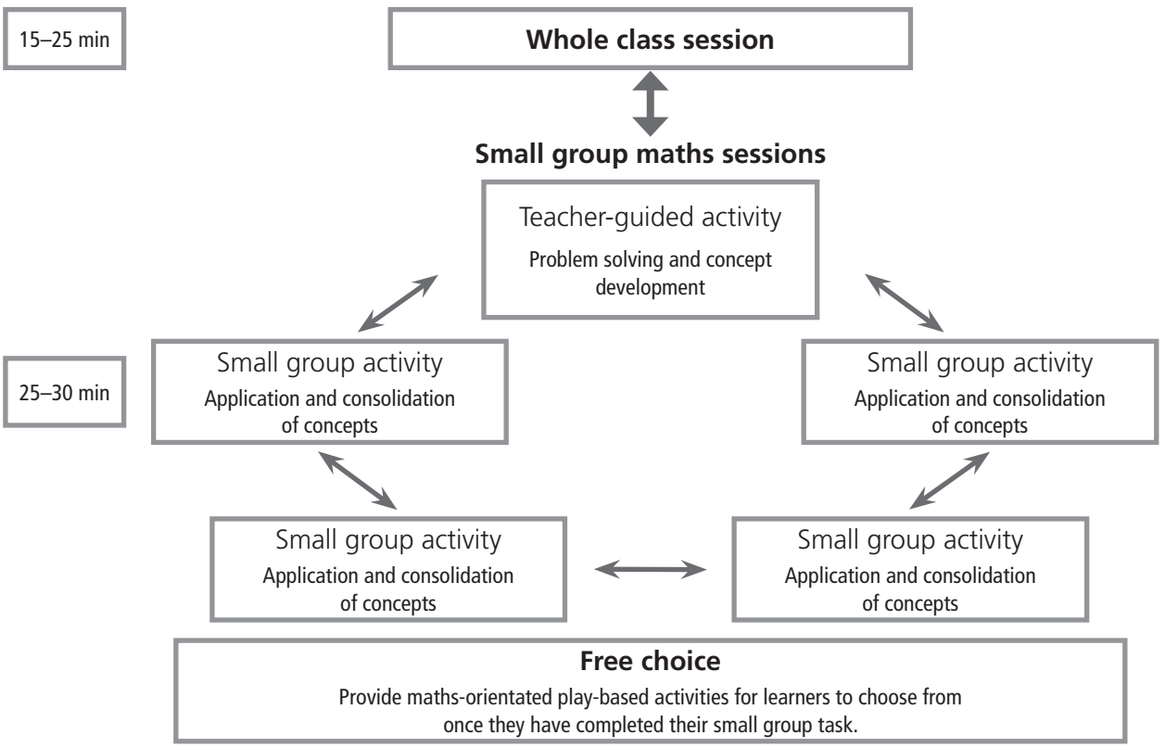


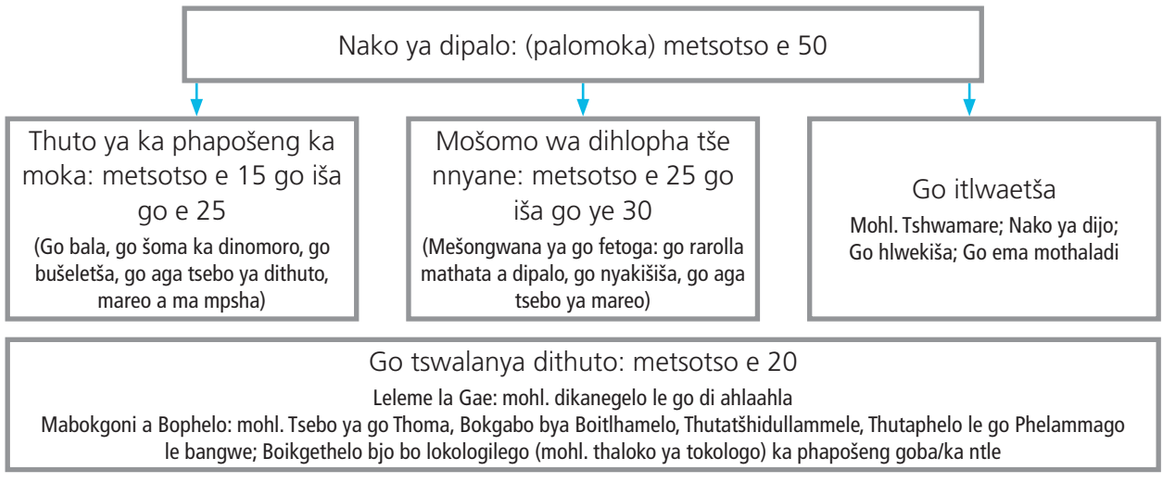
Figure 33 Daily maths focus time in Grade R Maths

Kabo ya nako ya Dipalo go Mphato wa R

Kabo ya nako go Dipalo Mphatong wa R ke diiri tše 7 ka beke e lego iri e 1 le metšotso e 24 (metsotso e 84) ka letšatši. Letšatši le tee le arotšwe ka mokgwa wo:

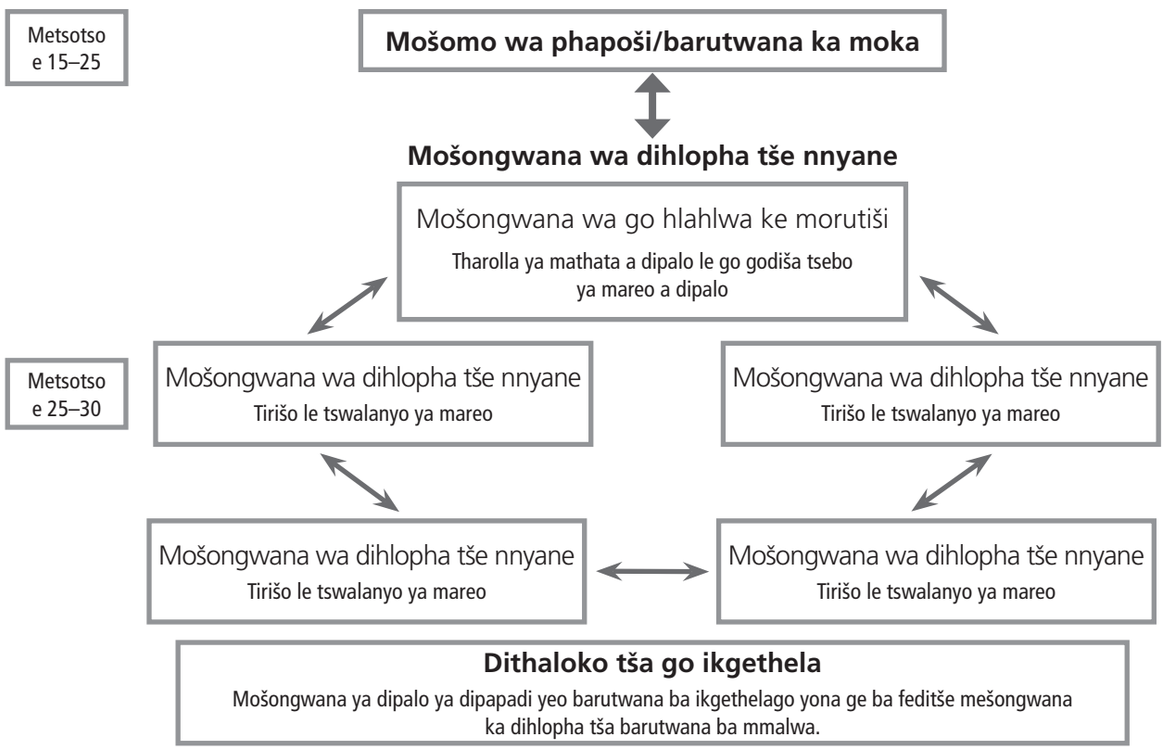
- netsotso e 50 go ithuta dipalo le go dira mešongwana
- metsotšo e 34 ya dithuto tša go tswalana, mešongwana ya tlhahlo le mešongwana yeo barutwana ba e dirago ka noši ka phapošeng le ka ntle.

Seswantšho sa 32 tšhišinyo ya kabo le tšhomišo ya nako ya iri e 1 le metsotso e 24.



Seswantšho sa 32 Tšhišinyo ya tšhomišo ya nako ya dipalo

Seswantšho sa 33 peakanyo ya nako ya go ruta dipalo ka go *Grade R Maths*.



Seswantšho sa 33 Nako ya go ruta dipalo ka letšatši ka go *Grade R Maths*

Additional activities that can be offered to learners include:

- puzzle building
- playdough activities
- construction activities
- educational games
- book corner – 'reading'
- DBE workbooks and worksheets.

Once the focused maths session has been completed, all learners participate in tidying up and then transition to the next part of the daily programme.

How to organise your classroom for the daily maths session

Follow these guidelines to help you put the Grade R Maths programme into practice in your classroom every day.

The Grade R Mathematics focus time should be organised and planned for a combination of whole class and small group activities. Different-sized groups fulfil different teaching and learning goals. The choice of a large or smaller group will depend on the teaching or assessment activity that the teacher has planned. Managing a large class is challenging, especially if the teacher plans to focus on individual learners and includes learners with barriers to learning.

Whole class maths sessions

Whole class maths sessions are usually between 15 and 25 minutes long and all the learners sit in a circle together with the teacher.

The following maths activities can be done in whole class maths sessions:

- consolidating and practising previously taught concepts
- introducing a new concept
- extending the concept that is the main focus of the week
- oral/rote counting (rhymes, songs, sequencing numbers)
- mental maths (posing problems, memory games)
- giving instructions for the tasks to be done in the small group context whilst you are busy with the teacher-guided activity.

Mešongwana ya tlaleletšo yeo e ka fiwago barutwana:

- go aga marara
- mešongwana ya go bapala ka motaga/tege
- mešongwana ya go aga
- dipapadi tša thuto
- sekhutlo sa dipuku – 'go bala'
- dipuku le maphephe a mešongwana a Kgoro ya Thuto (DBE).

Ge thuto ya dipalo e fela barutwana ka moka ba swanetše go kgatha tema ka go hlwekiša phapoši le go bea dilo madulong a tšona gore le thome thuto/lenaneo le le mpsha.

Mokgwa wa go beakanya phapoši ka nako ya thuto ya dipalo

Latela tlhahlo ye go go thuša go beakanya phaphoši ka mehla ka nako ya lenaneo la *Grade R Maths*.

Nako ya go ithuta Dipalo tša Mphato wa R e hlohleletša mešongwana ya sehlopha se se tee se segolo le dihlopa tše nnyane. Mehuta ye e fapanego ya dihlopha e phethagatša maikemišetše/tebanyo tša go fapana tša go ruta le go ithuta. Kgetho ya sehlopha se segolo goba se sennyane e hlathwa ke maikemišetšo a thuto goba mošomo wa kelo. Go laola sehlopha se segolo go boima, kudu ge morutiši a ikemišeditše go hlokomela dinyakwa tša barutwana ka o tee ka o tee le go lemoga mapheko a go ithuta ao barutwana ba ka bago nawo.

Thutwana ya dipalo ya phapoši ka moka

Nako ya go ruta dipalo ke metsotso ye 15 go ya go ye 25, moo barutwana ba kgobokanago go dikanetša morutiši.

Mešongwana ye e latelago e ka dirwa ka nako ya thutwana ya dipalo:

- go tiiša le go ikatiša ka mareo ao a rutilwego
- go ithuta mareo a ma mpsha
- katološo ya mareo ao a tlogo rutwa mo bekeng
- go balela godimo (direto, dikoša, tatelano ya dinomoro)
- menthele (hlagiša mathata a dipalo, dipapadi tša menthele)
- go fa ditšhupetšo/taelo tša mešongwana yeo e ka dirwago ke dihlopa tše nnyane mola barutwana ba sa dira mešongwana ya tlhahlo ba šeditšwe ke morutiši.

Figure 34 A whole class maths session

Small group maths sessions

In small group sessions, the class is divided into five groups of learners. Each day, one group works with the teacher (teacher-guided activity) while the other four groups work independently on maths activities that the teacher has planned.

The advantage of planning for small group teacher-guided and independent activities is that:

- Fewer resources are required for a small group than a whole class, for example, scissors, counters, blocks, etc.
- Every learner has an opportunity to handle the materials and resources.
- It encourages interpersonal skills, for example, sharing, taking turns, talking and listening.
- Learners take responsibility for group tasks, such as tidying up.
- The teacher can pitch instructions and questions at the level of the group.
- The teacher can observe each learner individually to ensure independent skills.

Using small groups gives teachers the opportunity to group learners with similar levels of skill and ability. In other words, the teacher is able to group learners according to the level of support they need in order to learn effectively.

Over the course of five days, the groups rotate to a different activity each day. This means that in a week all learners have the opportunity to complete the **teacher-guided focused activity** and four other small group activities (**a total of five different maths activities**). The four independent activities (or **side activities**) should be set out at four **workstations** around the classroom – either at the tables where the learners are seated or stand, or on the mat, or outside. The groups rotate over the course of a week, depending on how the teacher has planned the activities.

Seswantšho sa 34 Thutwana ya phapoši ka moka

Dithutwana tša dipalo ka dihlopha tše nnyane

Ka dithutwana tša dihlopha, phaphoši e ka arolwa ka dihlopha tše hlano. Sehlopha se tee se tla šoma le morutiši mola dihlopha tše dingwe tše nne di šoma ka bobona go dira (mešongwana yeo morutiši/motlhahli a e beakantšego).

Morero wa go go dira mešongwana ya go hlahlwa ke barutiši ya dihlopha tše nnyane ke:

- Go hlokega dithušathuto tše mmalwanyana go dira mešongwana go fa mohlala, dikero, dibaledi, dipoloko, bj.bj.
- Barutwana ka moka ba hwetša sebaka sa go šomiša dithušathuto.
- E hlohleletša go šoma mmogo, go fa mohlala, go abelana, go šielana, go bolela le go theeletša.
- Barutwana ba tšea maikarabelo a mešongwana ya sehlopha bjalo ka go hlwekiša.
- Morutiši a ka botšiša dipotšišo tša go ikgetha.
- Morutiši o kgona go hlokomela le go lemoga bokgoni bja morutwana yo mongwe le yo mongwe.

Dihlopha tše nnyane di thuša morutiši go beakanya barutwana go ya ka tsebo le bokgoni. Ka mantšu a mangwe, morutiši o kgona go hlopha barutwana ka mokgwa woo ba tla kgonago go hwetša thušo ya maleba gore ba tle ba kgone go tšwelela dithutong.

Mo matšatšing a mahlano, dihlopha di šielana ka go dira mešongwana ya go fapana. Se se bolela gore sehlopha se sengwe le se sengwe se ba le monyetla wa go dira **mešongwana ya go hlahlwa ke morutiši** le mešongwana ye mengwe ye mene ya dihlopha tše nnyane (**mešongwana ye mehlano ya dipalo ya go fapana**). Dihlopha tše nne tše di ikemetšego (**goba mešongwana ya ka thoko**) e swanetše go dirwa **mafelong a go šomela** a mane – e ka ba tafoleng moo barutwana ba emego goba ba dutše fase or mmeteng goba ka ntle. Dihlopha di tla šielana le go fetola sebaka sa go ithuta tšatši ka tšatši go ya le ka fao morutiši/motlhahli a beakantšego ka gona.

In practice ...

Ways of grouping learners for maths

The continuous observation of learners during outdoor and indoor activities will give teachers insight into the learners' abilities and interests. These insights will help you divide learners into different groups. The groups could be based on ability or could be determined by the learners' competence in a new skill.

- Ability groups: In these groups, learners are on a similar developmental level. Sometimes it is easier to teach new maths concepts using ability groups as some learners will need more time to complete a task, while others will need more challenging tasks. At times you may want learners with barriers to work with you to consolidate concepts, such as one-to-one correspondence and counting collections, or you might want to extend more advanced learners by giving them challenging maths problems.
- Mixed-ability groups: In these groups, learners have different levels of skill and understanding of a concept. These kinds of groups work well for construction, measurement, patterning and sorting activities, and games.

Whichever way you choose to group the learners, the groups should not remain the same over an extended time and each group should have their own symbol (picture or shape) and name.

Teacher-guided small group activities

In the teacher-guided activity, the teacher works with one group of learners while the other groups are busy completing the planned activities at one of the other four workstations.

The following activities are best suited to the teacher-guided small group context:

- consolidating and practising previously taught concepts
- deepening an understanding of a new concept.

In practice ...

Tips for teacher-guided small group maths activities

- Complete activities that focus on the Grade R Mathematics concept planned for that week.
- Work with the learners on the floor or at a table.
- Make the session interactive, with both you and the learners joining in.
- The focus should be on working orally and practically with the learners.

Go ikatiša ...

Mekgwa ya go beakanya dihlopha tša barutwana ka nako ya thutwana ya dipalo

Go hlokomela barutwana nakong ya mešongwana ya go bapala ka phapošeng goba ka ntle go fa morutiši sebaka sa go lemoga bokgoni le dinyakwa tša barutwana. Temogo ye e tla thuša morutiši go beakanya barutwana ka dihlopha. Dihlopha di ka beakanywa ka bokgoni goba kwešišo ya tsebo ye mpsha.

- Bokgoni bja dihlopha: Dihlopheng tše, barutwana ba beakanywa go ya ka bokgoni bja bona. Ka nako ye nngwe morutiši o swanetše go ruta bana bao ba nago le bokgoni bja go swana ka ge ba bangwe ba tlile go nyaka nako ya tlaleletšo go felletša mošomo mola ba bangwe ba nyaka mešongwana ya go fa tlhotlo. Ka nako ye nngwe o nyaka gore barutwana bao ba nyakago thekgo ba šome le wena go kwešiša dithuto tša go swana mola bao ba kwešišago dithuto ba nyaka mešongwana ya go ba tlhotla megopolo.
- Dihlopha tša barutwana ba bokgoni bja go fapana: Barutwana ba na le bokgoni bja go fapana ebile ba kwešiša mareo ka go fapana. Dihlopha tša mehuta wo di šoma bokaone mešongwaneng ya go swana le go aga, go ela, go dira phethene go hlaola le dipapadi.

Ka fao morutiši a ka kgetha mokgwa wa go aroganya barutwana, se se a dumelelwa. Efela morutiši o swanetše go hlokomela gore dihlopha di swanetše go ba bjalo lebaka le le telele gomme sehlopha se sengwe le se sengwe se swanetše go ba le leswao (seswantšho le sebopego) le leina.

Mešomo ya dihlopha tše nnyane ya go hlahlwa ke morutiši

Ka nako ya mešongwana ya go hlahlwa ke morutiši, yena o šoma le sehlopha se tee sa barutwana mola dihlopha tše dingwe di dira le go feleletša mešongwana yeo o beakantšwego.

Mešomo yeo e latelago ya dihlopha tše nnyane e nyaka thekgo ya morutiši:

- go tiiša le go ikatiša ka mareo ao a fetilego
- go kgonthišiša kwešišo ya mareo a ma mpsha.

Go ikatiša ...

Maele a go dira mešongwana ya dihlopha tše nnyane ya go hlahlwa ke morutiši

- Feleletša mešongwana ya beke yeo e lebanego le thuto ya Dipalo tša Mphato wa R.
- Šoma le barutwana mo fase goba tafoleng.
- Dira gore nako ya lena e akaretše ya barutwana ge ba dira mešongwana ka kopanelo.
- Mešongwana e swanetše go akaretša go bolela le go dira/go šoma.

Figure 35 Matching counters and number cards

Small group activities

The following activities are best suited to the small group context where learners work independently of the teacher:

- consolidating and practising previously taught concepts
- investigating the new concept that is the main focus of the week
- practising the concept that is the main focus of the week.

In practice ...

Tips for planning and managing independent small group maths activities

- Learners with a range of different abilities must be able to complete the activities.
- The activities must be meaningful for learners.
- The activities must be clear and simple enough to be completed without learners having to ask the teacher for help.
- If learners are working slowly, explore the reasons. Change or adapt the activity if necessary.
- Learners need to be responsible for completing their activities and should not need to disturb the teacher who will be busy with the teacher-guided activity.
- Teach the learners simple rules for what to do and how to behave during small group activities: how to tidy/pack up their work when done; how to behave in the transition activities. Repeat the rules daily until the learners know and can follow them automatically. This takes time! Be consistent. Gently correct learners if they challenge the rules.

Free choice activities

Additional activities should be provided for those learners who complete their individual small group activity before the end of the maths session. These activities should serve as reinforcement of the maths content you

Seswantšho sa 35 Go swantšha dikarata tša dinomoro

Mošomo ya dihlopha tše nnyane

Mešongwana ye e latelago e ka dirwa ke dihlopha tše nnyane ntle le thekgo ya moritiši:

- go tiiša le go ikatiša mareo ao a rutilwego
- go nyakišiša mareo a mafsa ba tla ithutago ona mo bekeng
- go ikatiša ka mareo a ma mpsha ao ba tla ithutago ona mo bekeng.

Go ikatiša ...

Maele a go beakanya le laola dihlopha tše nnyane tša šoma ntle le thekgo

- Barutwana ka moka ba swanetše go fetša mešongwana go sa kgathallege bokgoni bja bona.
- Mešongwana e swanetše go hola barutwana.
- Mešongwana e swanetše go ba boleta gomme barutwana ba e kwešiše ntle le go kgopela thušo ya morutiši.
- Ge barutwana ba šoma ka go nanya, leka go hwetša lebaka la seo. Ge go nyakega fetola mošomo.
- Barutwana ba swanetše go phetha mošomo ka noši ntle le thekgo. Barutwana ba se ke ba tshwenya morutiši yo a tla bego a dira mešongwana ya tlhahlo.
- Ruta barutwana seo ba swanetšego go se dira le ka mokgwa wo ba swanetšego go itshwara ka gona nako ya go dira mešongwana ya go hloka tlhahlo. Mekgwa ya go phutha ge ba feditše go dira mešongwana, ka mokgwa woo ba swanetšego go dira mešongwana ka gona le ka mokgwa woo maitshwaro a bona a swanetšego go ba ka gona ka nako ya mešongwana yeo. Bušeletša melao tšatši ka tšatši go fihlela barutwana ba kgona go e latela ntle le go botšwa. Se se tšea nako ka fao o swanetše go ba botša go fihlelela ba kwešiša. Phošolla barutwana bao ba sa latelego melao ka boleta.

Mešongwana ya go ikgethela

Mešongwana ya tlaleletšo e swanetše go fiwa barutwana bao ba fetšago mešongwana ya dihlopha tše nnyane pele ga nako. Mešongwana ye e swanetše go gatelela dithuto tša Dipalo tšeo barutwana ba ithutilego tšona. Barutwana ba swanetše go kgetha mešongwana go tšwa go yeo

have taught. Learners should choose an activity from those set out by the teacher. These activities should have a maths focus, for example, a puzzle, stacking blocks, drawing, colouring, moulding, sorting shapes or role-play.

Moving between activities (transitions)

A transition is the time when learners move from one activity to another. For example, after the maths whole class session is over, the classroom needs to be tidied and prepared for the next session. Transition times should be used to practise Mathematics, Home Language and Life Skills, e.g. oral counting, clapping patterns.

Teachers who plan and manage transitions are more likely to have calm, organised classrooms with happy, cooperative and stress-free learners.

In practice ...

Tips for emphasising maths during transitions

- Give the learners enough warning before they need to change activities, e.g. 'In two minutes we are going to complete the session.'
- Give clear instructions, e.g. 'First pack away what you are doing and then line up quietly at the door/sit in a ring.'
- Use 'attention grabbers', such as counting the number of claps, number songs and rhymes, and number signals (counting down/up).

Planning and preparing maths lessons

There are approximately 40 weeks in the year. You will need to plan and prepare thoroughly for each week.

In the week before the lesson

- Read the relevant sections of the *Concept Guide* and *Activity Guide*. These explain the content and concepts that will be taught, and give suggestions for appropriate activities and discussions.
- Plan and prepare the activities in the week before they will be taught.
- Identify the focus of assessment. (You can find more information on assessment on page 98.)
- Prepare the resources and organise the classroom for the week.
- Some resources need to be collected well in advance, e.g. egg boxes, toilet roll inners, yoghurt cups, milk bottles or objects for sorting.

During the week

- Focus on understanding the maths concept being taught that week.
- Read the relevant section in the *Concept Guide*.
- Each day, check that you have the resources needed for the following day's activities.
- Familiarise yourself with the activities well in advance. Teachers should never prepare while learners are sitting and waiting for an activity to begin.

e šišintšwego ke morutiši. Mešongwana e swanetše go ba ya dipalo gomme e ka akaretša marara, go aga, go thala, go khalara, go bopa, go aroganya dipobego goba bapala karolo ye e itšego.

Go fetola mešongwana (diphetogo)

Phetogo ke nako yeo barutwana ba fetšago mošomo o mongwe gomme ba thoma o mofsa. Go fa mohlala, ka morago ga dithutwana tša dipalo bjalo ka sehlopha se se tee se segolo phaposi e swanetše go hlwekišwa goba go beakanywa gore go tle go kgone go dirwa mešongwana ye mengwe. Nako ya phetogo e swanetše go šomišwa go ikatiša go dira Dipalo, Leleme la Gae le Mabokgoni a Bophelo, mohl. go balela godimo le go dira dibopego.

Barutiši bao ba bekanyago mešongwana ya phetogo gantši ba ba le phaposi ya go hloka lešata, ya go bekanywa ka mokgwa wa maleba yeo e thabišago, ya bana ba go kwešiša le go hloka mathata.

Go ikatiša ...

Maele a go ruta thuto ya dipalo ka nako ya phetogo

- Efa barutwana nako ya go fetola mešongwana. Ba fe ditaelo nako e sa le gona, mohl. 'Ka metšotso e mebedi re tlile go fetola mešongwana.'
- Ba fe ditaelo tša go kwagala, mohl. 'Sa pele le tla bea thokwana tšeo le bego le di šomiša gomme le eme ka mothaladi ge pele tšhipi e lla.'
- Šomiša mekgwa ya go dira gore ba theeletše bjalo ka go phaphatha diatla, go reta dinomoro, go opela dinomoro le go balela morago goba pele.

Go beakanya dithutwana tša dipalo

Go na le dibeke tše 40 tša go ruta mo ngwageng. Morutiši o swanelwa ke go beakanya dithutwana tša beke ye nngwe le ye nngwe.

Beke ya pele ga thutwana

- Bala dikarolo tša *Pukutlhahlo ya Mareo* le *Pukutlhahlo ya Mešongwana*. Dipuku di hlaloša mareo le diteng tšeo di swanetšego go rutwa gomme tša go fa le tlhahlo ya mešongwana le dikahlaahlo.
- Hlama le go beakanya mešongwana beke pele e ka rutwa.
- Laetša nepo ya mešongwana ya kelo/tekolo. (O ka hwetša tlhahlo ka tekolo/kelo letlakaleng la 99.)
- Beakanya dithušathuto tša beke gomme o kgonthišiše gore phaposi le yona e beakantšwe gabotse.
- Dithušathuto tše dingwe di nyaka go hwetšwa ka nako, mohl. mapokisi a mae, dikomiki tša yokate, mabotlelo a mafsi le dilo tše dingwe tšeo di nyakago go hlaolwa.

Mo bekeng

- Hlokomela mareo a dipalo ao a swanetšego go rutwa.
- Bala dikarolo tša maleba tša *Pukutlhahlo ya Mareo*.
- Tšatši ka tšatši kgonthišiša gore dithutšathuto tša tšatši le latelago di feletše.
- Itlwaetše mešongwana pele o ruta. Batutiši ba se beakanye mešongwana mola barutwana ba šetše ba le ka phapošeng.

The Grade R Maths programme resources

The Grade R Maths programme has four components.

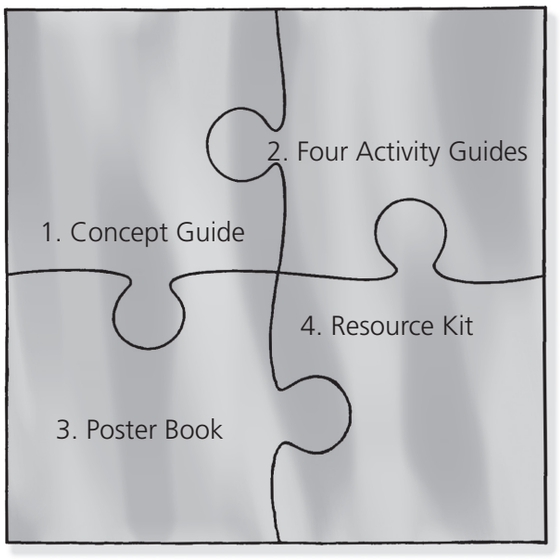


Figure 36 The components of the Grade R Maths programme

Concept Guide (this book)

This book provides:

- the principles behind the Grade R Maths programme for teaching maths to young learners
- guidance on how to organise your classroom for effective teaching and learning
- suggestions on how to teach maths in Grade R
- an outline of the maths content to be taught in the Grade R Maths programme
- guidelines on using Grade R Maths
- a glossary.

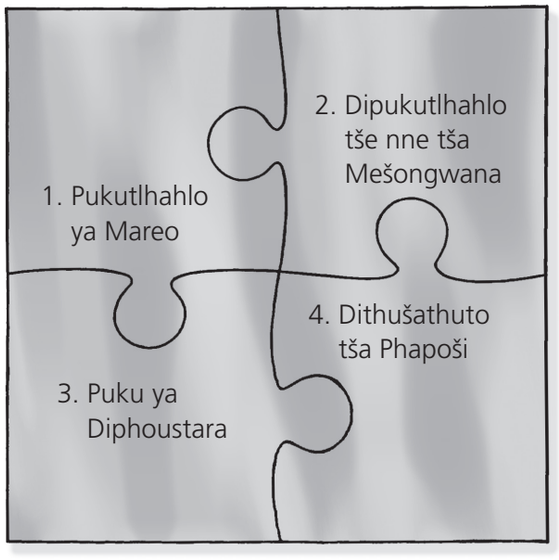
Activity Guides

There are four *Activity Guides* – one for each school term. Each *Activity Guide* includes:

- an overview of what will be covered in the term
- a maths concept area topic to be focused on in each week
- suggested activities for each week: whole class, and independent and teacher-guided small group activities
- teaching tips for planning and organising maths activities
- maths vocabulary that is learnt through the activities each week
- information on the resources that will be needed for the week
- resources, such as rhymes, songs, stories and templates.

Dithušathuto tša *Grade R Maths*

Lenanethuto la *Grade R Maths* le na le ditho tše nne.



Seswantšho sa 36 Dikarolo tše nne tša *Grade R Maths*

Pukutlhahlo ya Mareo (puku ye)

Puku e na le:

- kakaretšo ya motheo wa go ruta le go ithuta *Grade R Maths*
- tlhahlo ya mekgwa ya go beakanya phapoši ka nako ya go ruta le go ithuta dipalo
- dikakanyo ka mekgwa ya go ruta dipalo ka go Mphato wa R
- kakaretšo ya diteng tša thuto ya dipalo tšeo di swanetšego go rutwa lenaneong la *Grade R Maths*
- tšhupatsela ya go šomiša tlhahlamano ya dipuku tša *Grade R Maths*
- tlhalošantšu.

Dipukutlhahlo tša Mešongwana

Dipukutlhahlo tša Mešongwana ke tše nne – puku ye tee ka kotara.
Pukutlhahlo ya Mešongwana ye nngwe le ye nngwe e na le:

- kakatšeo ya tšeo di swanetšego go rutwa ka kotara
- karolothuto ya dipalo yeo e swanetšego go rutwa bekeng ye nngwe le ye nngwe
- tšhišinyo ya mešongwana ya beke: barutwana ka moka, mešongwana ya dihlopha ya go hlahlwa ke morutiši le ya go hloka tlhahlo
- maele a go beakanya mešongwana ya dipalo
- tlotlontšu ya dipalo yeo e tšweletšego ka gare ga mešongwana beke ye nngwe le ye nngwe
- tshedimošo ka dithušathuto tšeo di nyakegago mo bekeng
- dithušathuto tša go swana le direto, dikoša le dikanegelo.

Poster Book

The *Poster Book* is a big book containing eleven posters. The posters are meant for use in whole class activities and small group teacher-guided activities. They help to link maths to everyday life and can be used in different ways, e.g. for counting, discussing position and direction, time (sequencing events) and problem solving.

Resource Kit

The *Resource Kit* contains essential teaching and learning materials that will be used regularly as part of the teacher-guided activities. The kit provides enough apparatus for a small group of six to eight learners. Each kit has the following as shown in Figure 4 on page 12:

- counting materials, e.g. coloured discs and sticks, fruit and animal counters, and Unifix blocks
- jumbo dice
- strings of ten structure beads
- number cards: number symbols (0–10) and number words (zero–ten)
- attribute blocks
- dot cards.

Other resources

- CAPS policy documents
- DBE workbook and other resources

Additional resources (not supplied) that are needed for Grade R Maths activities include:

- 'pizza box'
- a height chart
- jumbo playing cards
- dice: with numbers and shapes
- pretend-money: coins and notes
- a calendar for the current year
- a large analogue wall clock
- a balance scale
- puppets
- pattern blocks (attribute blocks) and cards
- pegboard and pegs
- beanbags
- large and small balls
- beads for counting, sorting, threading and patterning (and laces)
- building blocks and boards
- Lego: different sizes and shapes
- construction toys
- puzzles: 8, 12, 20, 36 and 48 pieces
- modelling clay/playdough
- cookie cutters

Puku ya Diphoustara

Puku ya Diphoustara ke puku ye kgolo yeo e nago le diphoustara tše lesometee. Diphoustara di swanetše go šomišwa ka nako ya sehlopha se segolo le ka nako ya dihlopha tše nnyane tšeo di hlahlwago ke morutiši. Di thuša go tswalanya dipalo le bophelo bja ka mehla ka mekgwa ya go fapana, mohl. go bala, hlatha boemo le go fa ditšhupetšo (tatelano ya ditiragalo) le tharollo ya mathata a dipalo.

Dithušathuto tša Phaposi

Dithušathuto tša Phaposi ke dilo tša bohlokwa tšeo di šomišwago ka nako ya mešongwana ya go hlahlwa ke morutiši ya go ruta le go ithuta dipalo. *Dithušathuto tša Phaposi* di na le dilo tšeo di thušago dihlopha tša bana ba tshela go iša go ba seswai. Tšona di na le tšeo di bonalago Setswantšhong sa 4 letlakaleng la 13:

- di šomišwa tša go balwa, mohl. didiski tša mebala, dikotana tša mebala, dibaledi tša dienywa le diphoofolo le dipoloko tša *Unifix*
- letaese le legolo
- lenti la pheta tše lesome
- dikarata tša dinomoro: leswao la dinomoro (0–10) le maina a dinomoro (lefela–lesome)
- dipoloko
- dikarata tša marontho.

Dithušathuto tše dingwe

- Tokomane ya SEPHOLEKE
- Dipuku tša mešongwana tša DBE le dithušathuto tše dingwe

Tše dingwe (tšeo di hlokegago) go thuša ka *Grade R Maths* di akaretša:

- 'lepokisi la pitsa (*pizza*)'
- tšhate ye telele
- dikarata tše dikgolo
- letaese: la dinomoro le dibopego
- tšhelete ya go bapala: ya tshipi le ya dipampiri
- khalentara/tšhupamabaka
- watšhe ya leboteng (ya manakana)
- sekala sa tekanyetšo
- mepopi
- dipoloko tša dibopego le dikarata
- papetla ya diphekese le diphekese
- mokotla wa dinawa
- dikgwele tše nnyane le tše kgolo
- dipheta tša go bala, go hlaola, go loga le go dira dibopego le marala
- dipoloko tša go aga le letlapa/papetla
- dipapadiši tša *Lego*: tša saese/bogolo le dibopego tša go fapana
- dibapadišwa tša go aga
- marara: a diripa tše 8, 12, 20, 36 le 48
- tege/tlhama
- seripa dikuku (dibopego)

- cardboard boxes of different shapes and sizes
- a variety of plastic bottles and containers for describing and comparing capacity
- mathematical games: Lotto, Ludo, snakes and ladders, jigsaw puzzles, dominoes (to include colour, shape, numbers, sequencing, matching, classification and memory games)
- sand and water play equipment
- stacking cups of different sizes
- apparatus for climbing, balancing, swinging and skipping
- a play shop with items to be bought with pretend money
- counters for sorting
- storage boxes: 40 litre, 5 litre and 2 litre.

Assessment in Grade R

In Grade R, assessment is a continuous, planned process of gathering, analysing and interpreting information about each learner. It should be mainly **formative** and informal. In other words, the information gathered about the learners' progress during assessment should help you to plan and/or adapt learning activities. In Grade R, assessment is used to make decisions about the best way to support each learner's development.

GLOSSARY

formative assessment
assessment that provides information while learning is taking place and measures learners' progress

Assessment is the link between CAPS subject content, and teaching and learning activities. You cannot assess what you have not taught. The purpose of assessment is to:

- establish the level of each learner
- guide planning and inform teaching
- encourage each learner's developmental progression
- help generate useful reports on learner's achievements.

In practice ...

Assessment tips

- Assessment should never make learners feel anxious or scared.
- Assessment activities should be appropriate and suited to each learner's attention span.
- While you are busy observing a small group of six to eight learners in the focused teacher-guided activity, the other learners should be busy working independently on activities in their small groups at different workstations.
- Work with one small group of six to eight learners each day on a specific activity (depending on the number of learners in the class). While the learners are engaged in the activity, carefully observe each learner in the small group and ask questions to gain insight into their thinking.
- Information about what learners know and can do (or 'evidence') should be collected continuously (daily) over time.
- Information about what you have observed should be recorded at the end of the day, after teaching time.

- mapokisi a dibopego le disaese/bogolo tša go fapana
- mabotlelo le dikotlolo tša polastiki tšeo di tlago thuša go ruta mothamo
- dibapadišwa tša dipalo: *Lotto*, *Ludo*, noga le dillere, marara, ditomino (mebala, dibopego, dinomoro, tatelano, bapetša, hlopha le dipapadi tša monagano)
- dibapadišwa tša santa le meetse
- dikomiki tša go fapana ka di saese/bogolo
- dibapadišwa tša go namela le go fologa, dikompromae/meswinki ya go kgorometšwa le go taboga
- lebenkele moo barutwana ba tla rekago ka tšhelete ya go raloša
- dibaledi tša go ithuta go hlaola
- mapokisi a go bea dilo: dilitara tše 40 dilitara tše 5 le dilitara tše 2.

Tekolo Mphatong wa R

Ka go Mphato wa R tekolo e a tšwelela (tekolo/kelotšweledi), ke mokgwa wo o beakantšwego wa go kgoboketša, tlhopholla/fetleka le go hlatholla tshedimošo ka morutwana yo mongwe le yo mongwe. Tekolo e swanetše go dirwa ka mokgwa wa **tekolo ya semmušo** le wo e sego wa semmušo. Tekolo e swanetše go fa morutiši/motlhahli maano le mekgwa ya go beakanya dithuto le mešongwana. Mphatong wa R, kelo e šomišwa go bona gore na barutwana ba ka thušwa goba ba fiwa thekgo ya mohuta ofe.

TLHALOŠANTŠU

tekolo ya semmušo
tekolo yeo e fago tshedimošo ka tšwelopele ya barutwana nakong ya dithuto

Tekolo e tswalanya go ruta le go ithuta le mošomo le SEPHOLEKE. Morutiši a ka se ke a lekola/ela bokgoni ka seo a sa se rutago. Mehola ya kelo ke go:

- lemoga bokgoni bja barutwana
- hlahla le go beakanya mekgwa ya go ruta
- hlohleletša kgolo le tšwetšopele ya barutwana
- thuša go fa pego ka tšeo barutwana ba di tsebago ebile ba di kgonago.

Go ikatiša ...

Maele a kelo

- Tekolo ga ya swanela go tšhoša barutwana.
- Mešongwana ya tekolo e swanetše go ba ya maleba yeo e tšeago šedi ya barutwana.
- Ge morutiši a le gare a hlokometše mešongwana ya dihlopha tše nnyane tša go hlahlwa, barutwana ba bangwe ba swanetše go dira mešongwana ya dihlopha ya go se hlahlwe yeo e šišintšwego.
- Šoma le sehlopha se tee se sennyane sa maloko a tshela goba seswai ka beke (se se tla laolwa ke palo ya barutwana ka phapošeng). Ge barutwana ba dira mošomo, hlokomela/setša morutwana yo mongwe le yo mongwe gomme o ba botšiše dipotšišo tšeo di tlago ba thuša go godiša dikgopolo le tsebo ya bona.
- Tshedimošo/pego yeo o nago nayo ka barutwana e ka šomišwa bjalo ka bohlatse gomme e swanetše go dirwa ka mehla lebakeng le le telele.
- Tshedimošo/pego e swanetše go dirwa tšatši ka tšatši ka morago ga dithuto.

It is best to use many different ways of assessing learners. Here are some examples.

- Observe learners during whole class, teacher-guided small group activities and free play inside and outside the classroom.
- Record learners' understanding of specific maths concepts during and after teacher-guided activities.
- Questions and conversations with individual learners or small groups of learners can help you understand the level and depth of learners' thinking and reasoning.
- Look carefully at the things that learners do and record (using pictures, drawings, objects and/or 'writing'). These show you what the learners understand and have achieved.
- Listening to and recording learners' responses (practical, oral, written) allows you to do continuous assessment.

You need to continually assess all learners':

- maths knowledge
- maths understanding
- maths skills
- responses to solving problems
- ways of doing things. (Learners use their own ways of solving maths problems. These may be quite different from your methods, but this does not make them incorrect.)

Continuous assessment is especially important for helping teachers plan activities, check on learners' progress and plan additional support for learners who experience barriers to learning. (You can find more information on barriers to learning on pages 58–61.)

Assessment tools

In Grade R the focus of assessment is not to give marks but to inform detailed description and keep track of learners' progress. Teachers should use the following tools for assessment.

Observation book

In Grade R the teacher should observe learners inside and outside the classroom, during free play and structured activities. These observations will give teachers critical information that should inform their planning and selection of tasks. During the focused mathematics time, the teacher will work with one small group each day. The teacher will plan a specific activity that is linked to a concept in CAPS. While the learners are engaged in this activity, the teacher will carefully observe each learner and ask questions to gain insight into the learner's thinking and level of understanding.

Once the learners have gone home, the teacher will record the findings of these and other incidental observations. It is useful to use an indexed book to separate learners according to the first letter of their name.

Go bohlokwa go dira mešongwana ya kelo/tekolo ya go fapana ya go leka barutwana. Mehlala ke ye.

- Šetša barutwana ka nako ya sehlopha se segolo, le ka nako ya sehlopha se sennyane sa go hlahlwa ke morutiši le ka nako ya sehlopha se sennyane sa go se šetšwe ka nako ya dithuto le ya go bapala ka go lokologa.
- Dira rekhotho/pego ya kwešišo ya barutwana ya mareo tša dipalo ka nako ya mešongwana ya go hlahlwa le ya go se hlahlwe.
- Go botšiša le go bolela le barutwana ka nako ya dihlopha tše nnyane go ka thuša morutiši go kwešiša tsebo, bokgoni le dikgopolo tša barutwana.
- Hlokomela gore barutwana ba dira eng le gona bjang gomme o dire pego (go šomiša diswantšho, go thala le go ngwala). Tše ka moka di bontšha tšeo barutwana ba di tsebago le bokgoni bja bona.
- Theeletša le go bega dikarabo tša barutwana (tša go dira, tša go bolela le tša go ngwalwa) tše ka moka di tla go thuša go dira tekolo/kelotšweledi.

O swanetše go ela/lekola barutwana ka tše latelago ka mehla:

- tsebo ya dipalo
- kwešišo ya dipalo
- bokgoni bja dipalo
- dikarabo tša go rarolla mathata a dipalo
- mekgwa ya go dira dilo. (Barutwana ba šomiša mekgwa ya bona go kwešiša dipalo. Mekgwa yeo e ka fapana le ya gago se ga se bolela gore ga ba tsebe goba ba phošitše.)

Tekolo/kelotšweledi e bohlokwa ka gore e thuša barutiši go beakanya mešongwana, go hlokomela tšwelopele ya barutwana le go beakanya mešongwana ya tlaleletšo kudu yeo e ka thekgago barutwana bao ba nago le mapheko a go ithuta. (O ka hwetša tshedimošo ka botlalo ya mapheko a go ithuta matlakaleng a 58 go fihla go 61.)

Ditlabela tša kelo

Mphatong wa R tekolo ga se go fa dimaraka efela go hlaloša le go fa pego ka tšwelopelo ya barutwana. Barutiši ba ka šomiša ditlabela tše di latelago go dira tekolo.

Puku ya pego

Ka go Mphato wa R morutiši o swanetše go hlokomela barutwana ge ba dira mešongwana ka phapošeng le ka ntle ka nako ya go hlahlwa le ya go se hlahlwe. Ditemogo tše di thuša barutiši ge ba hlopha goba ba beakanya mešongwana. Ka nako ya go ruta dipalo morutiši o swanetše go šoma le sehlopha se tee sa barutwana ka letšatši. Morutiši o swanetše go dira mošomo o tee woo o tswalanago le SEPHOLEKE. Ge barutwana ba dira mošomo wo morutiši o swanetše go ba hlokomela ka go ba botšiša dipotšišo tše di tlago mo thuša go lemoga tsebo, bokgoni le kwešišo ya bona.

Ge barutwana ba ile gae, morutiši o tla rekhota tšeo a di bonego goba a di lemogilego ka barutwana. Go bohlokwa go rekhota barutwana ka lenaneo la maina a bona.

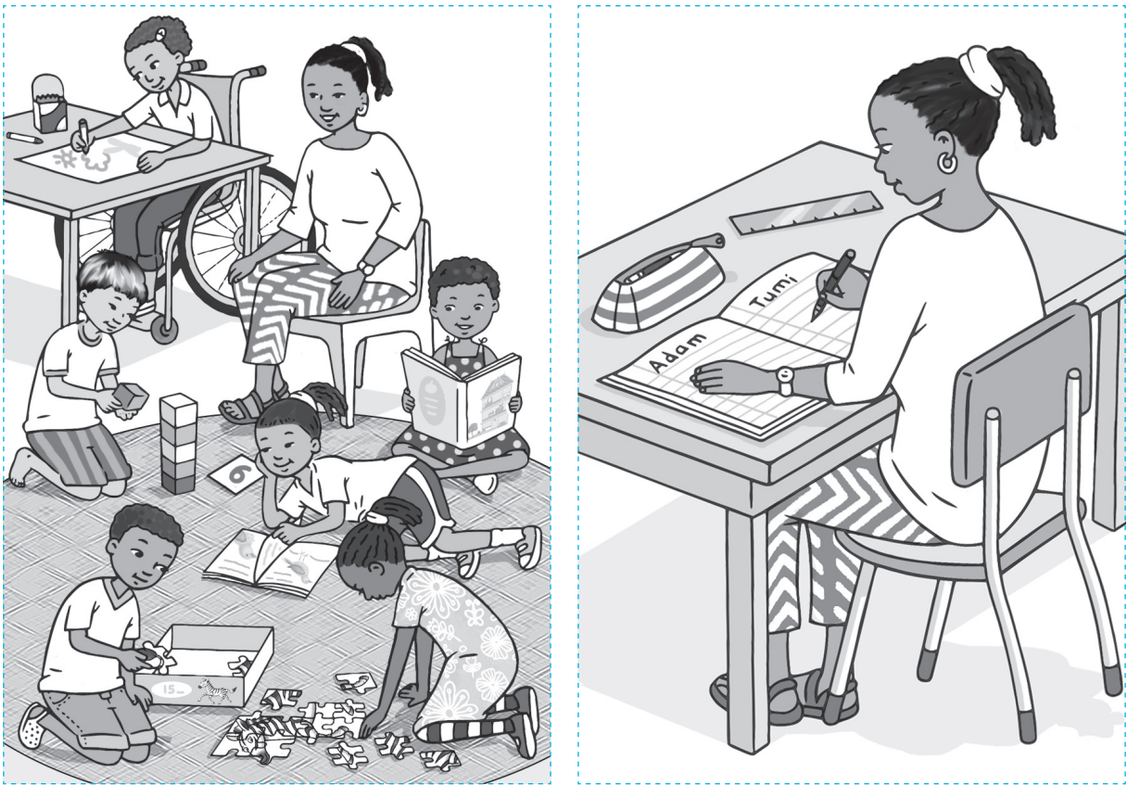


Figure 37 Observe learners then record your observations

Checklists

A checklist is a list of assessment criteria that gives a summary of each learner's skills and abilities for each subject. At the end of each *Activity Guide* of the Grade R Maths programme there is an assessment checklist for the term. This checklist provides a summary of the new content that has been taught during that term. The teacher can use symbols to show the learner's level of achievement. For example, use a tick if the skill was achieved, use a cross if it was not achieved, and use a dot to indicate that the learner is not fully competent, but is showing indications that they are on their way to achieving the skill.

Figure 38 gives an example of how the content the teacher needs to record, can be arranged. Learners' names are recorded in the first column followed by the assessment date. A symbol (✓ ✗ ●) should then be recorded next to each learner's name to correspond with the concept or skill listed in each column. This assessment tool is only useful if teachers have a very good knowledge of each learner, based on their continuous observations and the notes they recorded in their observation book.

Seswantšho sa 37 Hlokomela barutwana gomme o bege tšwelopele ya bona

Lenaneo la tšeo di swanetšego go hlokomelwa

Lenaneo la tšeo di swanetšego go hlokomelwa le fa kakaretšo ya tsebo le mabokgoni a barutwana ka thuto ye nngwe le ye nngwe. Mafelelong a mošomo wo mongwe le wo mongwe ka go *Pukutlahlo ya Mešongwana* ya *Grade R Maths* go na le lenaneo la tšeo di swanetšego go hlokomelwa/begwa. Lenaneo leo le bontšha diteng tše di mpsha tšeo di swanetšego go rutwa kotareng yeo. Morutiši a ka šomiša leswao go bontšha tšwelopele ya barutwana. Go fa mohlala, leswao la gore o kgonne e ka ba ✓ mola leswao la gore ga o a atlega e ka ba ✗. Barutwana bao ba sego ba atlega ba fiwa kholofelo ya gore ba tla kgona/atlega ka moso.

Seswantšho sa 38 se fa mohlala wa ka fao tšwelopele e ka begwago goba ya dirwa ka gona. Maina a barutwana a ka ngwalwa ka kholomong e nngwe mola ka go e nngwe go ka ngwalwa letšatšikgwedi la teko ka go ye nngwe gwa ngwala leswao. Leswao le swanetše go šupa tsebo le mabokgoni (✓ ✗ ●) gomme le ngwalwe kgaufsi le leina la morutwana yo mongwe le yo mongwe. Mokgwa wo o thuša barutiši go tseba le go kwešiša barutwana.

Term 1: Exemplar Record of Continuous Assessments

Key	NUMBERS, OPERATIONS AND RELATIONSHIPS													PATTERNS, FUNCTIONS AND ALGEBRA					COMMENTS	
✓ = competent ● = partially competent ✗ = not yet competent **Learners' names**	Counts forwards to 10	Estimates and counts objects 1–5	Counts backwards 5–1	Recognises numbers in familiar contexts	Understands ordinal numbers, e.g. lining up	Identifies dot/pictures cards 1–3	Identifies number symbols: 1	Identifies number names: one	Orders numbers: 1–3	Understands one-to-one correspondence	Distinguishes between many and fewer	Solves problems with concrete objects	Solves problems using fingers or counters	Identifies patterns in environment	Recognises the 'repeat' in patterns	Copies patterns using body percussion	Copies, completes and creates own patterns	Explains own pattern (repeating rule)		Final coding
Date																				

Figure 38 Exemplar checklist

Kotara ya 1: Mohlala wa Tekolo/Kelotšweledi

Senotlelo	DINOMORO, TIRIŠO LE TSWALANO													DIPATRONE, DIFANKŠENE LE ALTŠEBRA					DITLHALOŠO	
✓ = o kgonne ● = o lekile ✗ = ga go bokgoni **Maina a barutwana**	Go balela pele go fihla ka 10	Go akanya le go bala dilo 1–5	Balela morago 5–1	Lemoga dinomoro mabakeng a go fapana	Kwešiša palotšhupatatelano, mohl. go ema mothaladi	Lemoga marontho/dikarata tša diswantšho 1–3	Lemoga maswao a dinomoro: 1	Lemoga maina a dinomoro: tee	Beakanya dinomoro: 1–3	Kwešišo ya tee-ka-tee	Hlaola magareng ga ntši le nnyane	Rarolla bothata ka dilo tša nnete	Rarolla bothata ka go bala ka menwana	Lemoga dibopego	Lemoga le go bošeletša dibopego/diphethene	Go kopolla diphethene mmeleng wa yo mongwe	Kopolla, feleletša le go ihlamela diphethene	Hlaloša diphethene tšeo ba ithometšego (bušeletša molao)		Mokgwa wa mafelelo wa go rekhota
Letšatšikgwedi																				

Rubrics

A rubric is another tool for assessing learners' achievements. It also consists of a list of criteria with a description of levels of performance for a particular skill. Each description explains what the learner actually does or produces during an assessment task for that criteria. A rubric needs to provide well-written descriptions and levels of performance so that these can be accurately matched against each learner's performance. The rubric then allows teachers to be more objective and consistent in their assessment and guides their planning of further teacher activities as it highlights the strengths and gaps in the learners' knowledge.

Figure 39 provides an example of a rubric for solving addition problems up to 10 in a practical way.

Criteria	Not achieved [1]	Elementary achievement [2]	Moderate achievement [3]	Adequate achievement [4]	Substantial achievement [5]	Meritorious achievement [6]	Outstanding achievement [7]
Solves addition problems practically up to 10.	Unable to solve problems practically.	Is able to solve problems practically, using concrete apparatus.	Is able to solve problems practically, but cannot explain solution method.	Is able to solve problems practically and describes solution method when prompted.	Is able to solve problems practically and describes solution method independently.	Is able to solve problems practically and is able to explain solution method.	Is able to solve problems practically and is able to explain solution method and suggest alternative methods.

Figure 39 Exemplar rubric

The level descriptors on the rubric can be linked to rating codes. The Department of Basic Education (DBE) provides a rating code and description of competence, and links these to percentages (see Figure 40). For reporting purposes the rating codes and descriptors could be converted to percentages.

Rubriki

Rubriki ke setlabela se sengwe sa go rekhota/bega tšwelopele ya barutwana. Le yona e na le lenaneo la tšeo di swanetšego go hlokomelwa (tsebo le kwešišo ya bokgoni). Tlhalošo ye nngwe le ye nngwe e bontšha seo morutwana a swanetšego go se tseba goba go se kgona. Rubriki e swanetše go ngwalwa gabotse ka ditlhalošo le magato ao a lebanywago le maina a barutwana. Yona e dumelela barutiši go se ahlole le go tielela mokgweng o tee ge ba dira diteko le ge ba hlama le go beakanya mešongwana. Se se thuša barutiši go kwešiša le go lemoga ditšhitišo, tsebo le bokgoni bja barutwana.

Seswantšho sa 39 mohlala wa rubriki ya go rarolla mathata a dipalo, go fihla ka 10, ka tsela ya maleba.

Mokgwa	**Hlolegile** [1]	**Bokgoni bja go išega** [2]	**Bokgoni bja go amogelega** [3]	**Bokgoni bjo bo lekanego** [4]	**Bokgoni bjo bo kgotsofatšago** [5]	**Bokgoni bjo botse kudu** [6]	**Bokgoni bjo botse kudukudu** [7]
Go kgona go rarolla mathata a dipalo go fihla ka 10.	Hlolega go rarolla mathata a dipalo.	O kgona go rarolla mathata a dipalo ge a šomiša didiriswa.	O kgona go rarolla mathata a dipalo ge šomiša dilo, efela a hlolega go hlaloša karabo.	O kgona go rarolla mathata a dipalo ge a diriša dilo, a kgona le go hlaloša karabo ge a kgopelwa go dira bjalo.	O kgona go rarolla mathata a dipalo ge šomiša dilo, a kgona le go hlaloša mokgwa wa go hunmana karabo ka boyena.	O kgona go rarolla mathata a dipalo ge šomiša dilo, kgona go hlaloša karabo le mokgwa wa go hwetša karabo.	O kgona go rarolla mathata a dipalo ge šomiša dilo, kgona go hlaloša karabo le mekgwanakgwana ye mmalwa ya go hwetša karabo.

Seswantšho sa 39 Mohlala wa rubriki

Magato a go hlaloša rubriki a ka tswalanywa le dikhouto tša teko/tekanyetšo. Kgoro ya Thuto ya Motheo (DBE) e file tlhahlo ya dikhoutu tša tekanyetšo le ditlhalošo tša bokgoni le diperesente tša gona (lebelela Seswantšho sa 40). Go thuša go dira pego ditlhaloši tša bokgoni di fetolelwa go diperesente.

Rating code	Description of competence	Percentage
7	Outstanding achievement	80–100
6	Meritorious achievement	70–79
5	Substantial achievement	60–69
4	Adequate achievement	50–59
3	Moderate achievement	40–49
2	Elementary achievement	30–39
1	Not achieved	0–29

Figure 4.0 Rating code

In Grade R the focus of assessment is on describing performance rather than evaluating it against percentages. Reports that provide parents and other teachers with rich descriptions of behaviours and what learners produce, are far more valuable for assessing performance than percentages are. It is best to avoid negative evaluative assessments that fail learners early on in the system. Assessment should be used to gain insight into the learners' level of competence in order to adjust planning and teaching to accommodate and encourage each learner in the class.

You will need to record your assessment observations and other 'evidence' in a journal, and on an observation sheet or checklist. In this way, during the year, a complete picture of each learner, with all their strengths and weaknesses, is gradually built up.

Khoutu ya tekanyetšo	Ditlhalošabokgoni	Peresente
7	Bokgoni bjo botse kudukudu	80–100
6	Bokgoni bjo botse kudu	70–79
5	Bokgoni bjo bo kgotsofatšago	60–69
4	Bokgoni bjo bo lekanego	50–59
3	Bokgoni bja go amogelega	40–49
2	Bokgoni bja go išega	30–39
1	Hlolegile	0–29

Seswantšho sa 40 Khoutu ya tekanetšo

Mphatong wa R kelo/tekolo e hlaloša bokgoni bja go dira e sego diperesente fela. Dipego/raporoto di bontšha batswadi le barutiši ba bangwe seo morutwana a se tsebago goba a kgonago go se dira. Se ke mokgwa wo mobotse wa go laetša tšwelopele ya morutwana ntle le go ahlohla le go ba bontšha gore ba phošitše. Kelo/tekolo e swanetše go šomišwa go thuša barutiši go beakanya dithuto ka mokgwa wa go akaretša barutwana ka moka ka phapošeng.

Morutiši o tla swanelwa ke go gatiša ditiragalo tša mešongwana ya kelo/tekolo ka gare ga tšenale bjalo ka bohlatse. Tšenale e swanetše go akaretša lenanetlhahlo leo le tlago tlatšwa lebakeng la ngwaga ka moka. Lona le tla hlokomela le go bontšha bonnete ka tsebo, bokgoni le kwešišo le kgolo/tšwelopele ya barutwana ka moka (le ka o tee ka o tee).

SECTION 3

Mathematics in Grade R

Introduction

This section of the *Concept Guide* provides an overview of the Content Areas of the Grade R Mathematics CAPS and:

- offers practical ideas for classroom implementation
- explains the maths concepts and content that teachers need to understand
- highlights the development of maths knowledge in young learners.

It also gives a breakdown of the Term 1–4 Grade R content (pages 114 to 137). The five CAPS Content Areas are:

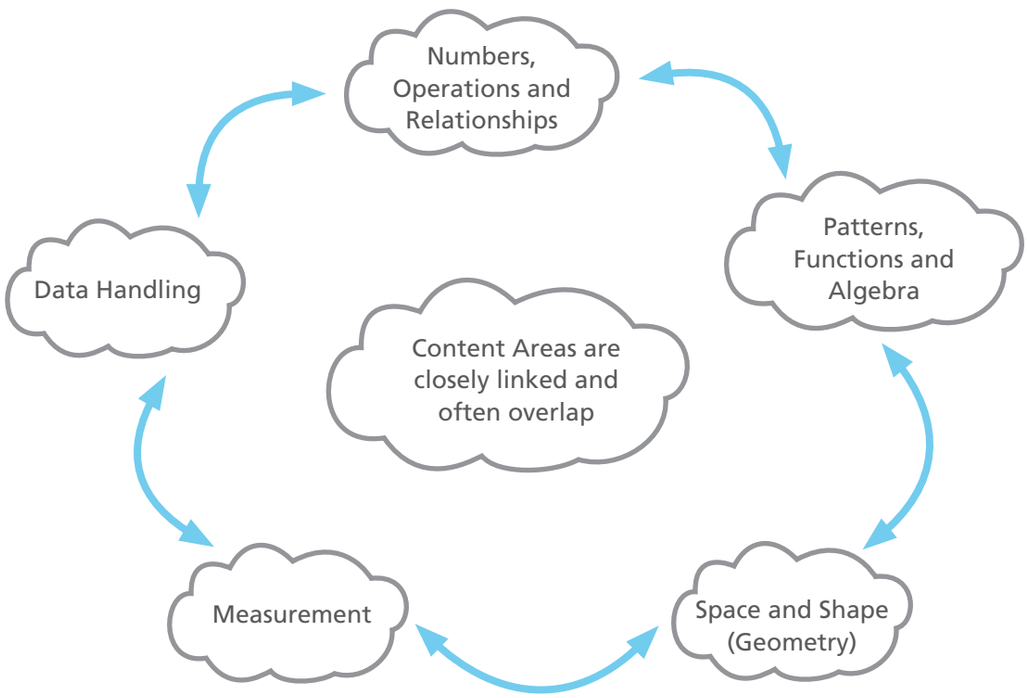


Figure 4.1 Grade R CAPS Mathematics Content Areas

Each Content Area is divided into topics. For each of these topics, this section of the *Concept Guide* provides:

- an explanation of the topic, which includes identifying specific concepts and skills
- teaching suggestions in the 'In practice' boxes
- an explanation of maths terms.

KAROLO YA 3

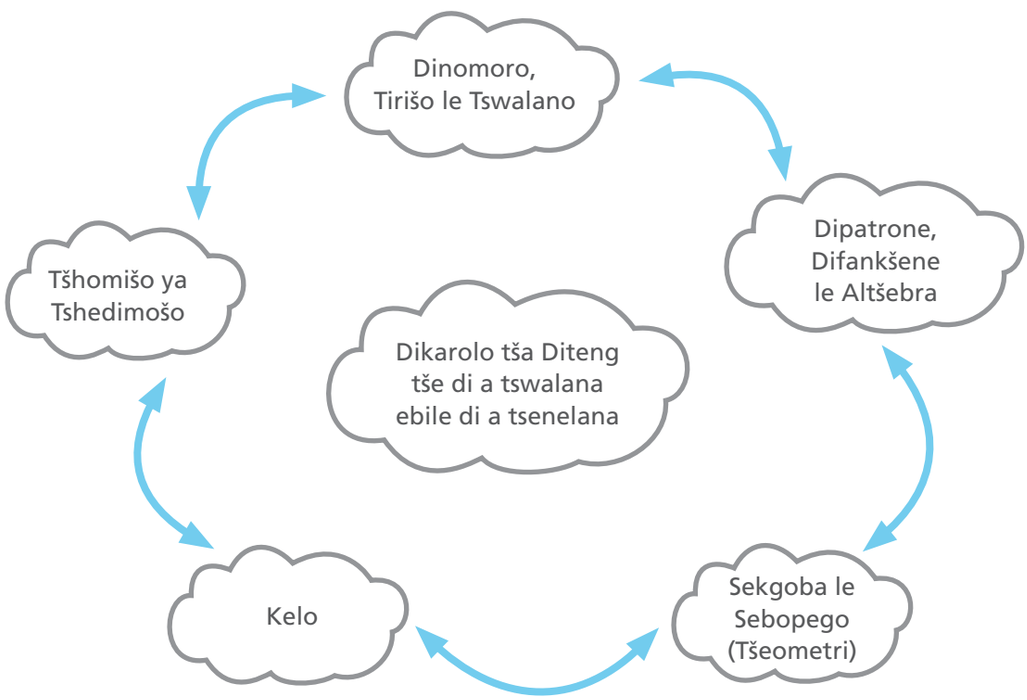
Dipalo ka Mphatong wa R

Matseno

Karolong ye *Pukutlhahlo ya Mareo* e fa kakaretšo ya dithuto tša Dipalo ka go Mphato wa R go latela SEPHOLEKE. Kakaretšo e ama:

- thuša barutiši ka dikeletšo tša phethagatšo ka phapošeng
- hlaloša mareo a dipalo le diteng ka mokgwa wo barutiši ba tla go kwešiša
- laetša tsela le mekgwa ya go godiša tsebo ya barutwana ya thuto ya dipalo.

E laetša mekgwa diteng tša go rutwa tša Mphato wa R Kotareng ya 1–4 (matlakala 114–137). Dikarolo tša Diteng tše hlano ka gare ga SEPHOLEKE ke:



Seswantšho sa 41 Mphato wa R Dikarolo tša Diteng tša Dipalo tša SEPHOLEKE

Karolo ya Diteng ye nngwe le ye nngwe e arotšwe ka direrwa/dihlogo. Hlogo ye nngwe le ye nngwe, karolong ye ya *Pukutlhahlo ya Mareo*:

- hlaloša sehlogo, akaretša temogo ya dithuto le bokgoni
- mapokisi a 'Go ikatiša' a laetša mekgwa ya go ruta
- hlaloša ka tsinkelo tlotlontšu ya dipalo.

Although the Content Areas reflect particular strands of maths development, they are all closely linked and often overlap during activities. For example, when learners are focusing on a measurement task, they will integrate skills from another Content Area, for example, Numbers, Operations and Relationships, and so also use their knowledge of numbers, counting and skills of comparison. Learners have opportunities to apply their knowledge and skills in different contexts.

In practice ...

While teachers focus specifically on these Content Areas during the maths focus time, they should also remember to make the most of other opportunities in the daily programme to:

- use maths language to introduce and reinforce concepts
- model the use of a wide range of vocabulary linked to number, shape, space, measurement and data handling.

Here are some practical ways to do this:

- Provide bought, recycled and natural materials for learners to sort, compare and order.
- Provide resources to role-play buying and selling, weighing and measuring.
- Make sets of pictures to show the sequence of events during the day and the weather during the week.
- Observe and talk about shape and patterns in pathways, fences, vegetable gardens.
- Plan activities and games where learners use their physical and mathematical skills to follow and give directions.
- Link stories and outdoor play to maths.

Mathematics content

The content overview that follows provides a table of the Grade R Maths content to be taught in the Grade R year. It shows what content is to be taught each term.

- The text in blue is the content from the Grade R CAPS for Mathematics.
- The text descriptions and content in black have been added to extend and build on CAPS.
- The topics are sequenced to show a developmental progression from one topic to another.

Karolothuto ye nngwe le ye nngwe e sekametše lehlakoreng le le rilego la tsebo le kgodišo ya dipalo, le ge go le bjalo dikarolothuto di a tswalana ebile di a tsenelana. Go fa mohlala, ge barutwana ba dira mošomo wa go lekanyetša ba ithuta go tšwa go Karolo ya Diteng ye nngwe, go fa mohlala, Dinomoro, Tirišo le Tswalano, ebile ba ithuta le ka dinomoro, go bala le go bapetša. Se se thuša barutwana go humana sebaka sa go šomiša tsebo le mabokgoni a bona mabakeng a go fapana.

Go ikatiša ...

Le ge barutiši ba hlokomela Dikarolo tša Diteng tše di rileng ka nako ya thuto ya dipalo, ba swanetše go gopola go šomiša lenaneokakaretšo la tšatši ka tšatši ka ge le:

- šomiša polelo ya dipalo go tsebiša le boeletša mareo
- laetša mekgwa ya go fapana ya go šomiša tlotlontšu ya dinomoro, dibopego, dibaka, tekanyetšo le tšhomišo ya tshedimošo.

Mekgwa ya go dira tše boletšwego ka godimo ke ye:

- Efa barutwana dilo tša go rekwa, šomišwaleswa le tša tlhlago tšeo di ka ba thušago go ithuta go hlaola, bapetša le go beakanya.
- Efa barutwana dithušathuto ka mokgwa wa ditiragatšo mohlala wa go reka le go rekiša, go lekanyetša le go ela.
- Somiša diswantšho go bontšha barutwana tatelano ya dilo ka letšatši le maemo a boso a beke.
- Hlokomedišiša o be o bolele ka dibopego le dipaterone tšeo ba di bonago mekgotheng, diterateng le ka dirapaneng.
- Thuša go hlama mešomo le dipapadi tšeo di fago barutwana sebaka sa go šomišago bokgoni bja dipalo go latela le go fa ditšhupetšo.
- Tswalanya dikanegelo le dipapadi tša ka ntle ga phaposi le thuto ya dipalo.

Diteng tša thuto ya Dipalo

Kakaretšo ya diteng yeo e latelago e bontšha gore ke dithuto dife ka go *Grade R Maths* tšeo di swanetšego go rutwa ngwageng wa Mphatong wa R. E bontšha go re ke diteng dife tšeo di swanetšego go rutwa kotareng ye nngwe le ye nngwe.

- Tsebišo yeo e mmalafaditšwego ka botala e tšwa go SEPHOLEKE sa Dipalo Mphatong wa R.
- Tlhalošo le diteng tšeo di ngwadilego ka boso ke tsebo ya tlaleletšo yeo e thekgago dithuto gomme di hlamilwe ka SEPHOLEKE.
- Dihlogo di latelantšwe ka mokgwa woo di thušago go godiša tsebo go hlogo ye nngwe go ya go ye nngwe.

1. NUMBERS, OPERATIONS and RELATIONSHIPS					
	TOPIC	**TERM 1**	**TERM 2**	**TERM 3**	**TERM 4**
COUNTING					
1.1	**Count objects (Estimate and count objects to develop number sense)**	**Number range: 1–5** Count in ones: one-to-one correspondence: body parts and concrete objects Introduce the Helper's chart Introduce the concept of estimation (a reasonable guess) Dot cards: - identify number dots on cards, dominoes and dice (1–5) - match objects to pictures and dot cards Count 'how many' using fingers, dot cards, objects in and outside the classroom, pictures and actions, e.g. clapping hands, stamping feet	**Number range: 1–7** Estimate and count Count in ones: one-to-one correspondence: body parts and concrete objects Reinforce Helper's chart Dot cards: - identify number of dots on cards, dominoes and dice (1–6) - match objects to pictures and dot cards Use a range of contexts, objects and events for counting 'how many'. Fingers, dot cards, ten structure beads, other objects in and outside the classroom, pictures and actions, e.g. clapping hands, stamping feet Show 'one more/ one less' Clap many times/ fewer times	**Number range: 1–10** Estimate and count Count in ones: one-to-one correspondence; count all: - body parts - concrete objects Reinforce Helper's chart Dot cards: recognise collections of dots 1–5 and up to 3 more on cards, dice and dominoes Start at given number and 'count on' jumping along a number track, using ten structure beads, picture cards, number washing line Show 'one more/ one less; two more/ three less' Clap many times/ fewer times: - which number of claps are more/less, most/least	**Number range: 0–10 and beyond** Estimate and count Count in ones: one-to-one correspondence; count all: - body parts - concrete objects Reinforce Helper's chart Dot cards: recognise collections of dots 1–5 and up to 5 on dice (1–6) and dominoes Start at given number and 'count on' jumping along a number track, using ten structure beads, picture cards, number washing line Show 'one more/ one less; two more/ three less' Clap many times/ fewer times: - which number of claps are more/less, most/least Meaning of zero (nought) '0'
1.2	**Count forwards and backwards** **Oral or rote counting (rhythmic)**	**Counting forwards: 1–10** **Counting backwards: 5–1** Incidental counting using number rhymes and songs, daily routine, body movements, etc. Count in ones Number range: 1	**Counting forwards: 1–15** **Counting backwards: 7–1** Incidental counting using number rhymes and songs, daily routine, body movements, etc. Count in ones Number range: 1–4	**Counting forwards: 1–20** **Counting backwards: 10–1** Incidental counting using number rhymes and songs, daily routine, body movements, etc. Count in ones Number range: 1–7	**Counting forwards: 0–20 and beyond** **Counting backwards: 10–0** Incidental counting using number rhymes and songs, daily routine, body movements, etc. Count in: ones, twos Number range: 0–10

1. DINOMORO, TIRIŠO le TSWALANO					
	HLOGOTABA	**KOTARA YA 1**	**KOTARA YA 2**	**KOTARA YA 3**	**KOTARA YA 4**
GO BALA/BALELA					
1.1	**Dikarata tša marontho (Go akanya le go balela didirišwa go bopa dinomoropalo)**	**Tlhatlamano/ tatelano ya dinomoro: 1–5** Bala ka botee: tee ka tee: ditho tša mmele le didirišwa tša go swarega Go tsebiša tšhate ya thušo Hlagiša dithuto tša tekanyetšo (kakanyo) Dikarata tša marontho: - lemoga marontho dikarateng, ditominong le mataeseng (1–5) - tswalanya didirišwa, diswantšho le dikarata tša marontho Bala ka menwana gore 'ke tše kae'. Dikarata tša marontho, didirišwa ka ntle le ka gare ga phaphoši, diswantšho le ditiro, mohl. go phaphata diatla, go dira modumo ka leoto	**Tlhatlamano/ tatelano ya dinomoro: 1–7** Akanya o bale Bala ka botee: tee ka tee: ditho tša mmele le didirišwa tša go swarega Boeletša tšhate ya thušo Dikarata tša marontho: - lemoga marontho dikarateng, ditominong le mataeseng (1–6) - tswalanya didirišwa, diswantšho le dikarata tša marontho Šomiša didirišwa tša go fapana, dilo le mabaka go bala go re 'ke tše kae'. Menwana, dikarata tša marontho, pheta ya sebopego sa lesome, didirišwa ka gare le ka ntle ga phaphoši, diswantšho le ditiragatšo, mohl. ka go phaphata diatla, go dira modumo ka leoto Bontšha 'e tee gape/ fokotša e tee' Phaphatha gantši ga mmalwa	**Tlhatlamano/ tatelano ya dinomoro: 1–10** Akanya o bale Bala ka botee: tee ka tee didirišwa tša go swana; di bale ka moka: - ditho tša mmele - dilo/didirišwa tša go swarega Boeletša tšhate ya thušo Dikarata tša marontho: lemoga kgobokanyo ya dikarata tša marontho 1–5, hlakanya dikarata tša marontho, mataese le ditomino tše 3 Thoma gape ka nomoro yeo e filwego 'o bale o taboga' dinomoro ka go šomiša pheta ya sebopego sa lesome, dikarata tša diswantšho, mothalopalo Bontšha 'e tee gape/ fokotša e tee/tše pedi gape/fokotša tše tharo' Phaphatha gantši ga mmalwa: - go phaphatha gantši/ga mmalwa goba gantši/ga nnyane	**Tlhatlamano/ tatelano ya dinomoro: 0–10 le go feta** Akanya o bale Bala ka botee: tee ka tee didirišwa tša go swana; di bale ka moka: - ditho tša mmele - dilo/didirišwa tša go swarega Boeletša tšhate ya thušo Dikarata tša marontho: lemoga kgoboketšo ya dikara tša marontho 1–5, 5 letaeseng le (1–6) ditominong Thoma ka nomoro yeo e filwego mme 'o bale' o tshela dinomoro ka go šomiša pheta ya sebopego sa lesome, dikarata tša diswantšho, mothalopalo Bontšha 'e tee gape/ fokotša e tee/tše pedi gape/fokotša tše tharo' Phaphatha gantši ga mmalwa: - go phaphatha gantši/ga mmalwa goba gantši/ga nnyane Hlaloša ya lefeela (lefeela) '0'
1.2	**Bala/balela go ya pele le go ya morago** **Go balela godimo leboelela (mošito)**	**Go balela pele: 1–10** **Go balela morago: 5–1** Go bala ka sewelo ka go šomiša diretopalo le dikoša, go itlwaetša, tshepetšo ya mmele, bj.bj. Bala ka botee Nomoro: 1	**Go balela pele: 1–15** **Go balela morago: 7–1** Go bala ka sewelo ka go šomiša diretopalo le dikoša, go itlwaetša, tshepetšo ya mmele, bj.bj. Bala ka botee Dinomoro: 1–4	**Go balela pele: 1–20** **Go balela morago: 10–1** Go bala ka sewelo ka go šomiša diretopalo le dikoša, go itlwaetša, tshepetšo ya mmele, bj.bj. Bala ka botee Dinomoro: 1–7	**Go balela pele: 0–20 le go feta** **Go balela morago: 10–0** Go bala ka sewelo ka go šomiša diretopalo le dikoša, go itlwaetša, tshepetšo ya mmele, bj.bj. Bala: botee, bobedi Dinomoro: 0–10

	TOPIC	TERM 1	TERM 2	TERM 3	TERM 4
1.3	**Number symbols and number names** **Recognise and identify number symbols and number names**	**Number symbols: 1, 2, 3** **Number names: one, two, three** Represent numbers using: - body (kinaesthetic) - objects (concrete) - pictures, drawings (semi-concrete) - dot cards (semi-concrete) Match with number symbol (abstract) and number name Number symbol: 1 Number name: one	**Number symbols: 4 and 5** **Number names: four, five** Represent numbers using: - body (kinaesthetic) - objects (concrete) - pictures, drawings (semi-concrete) - dot cards (semi-concrete) Match with number symbol (abstract) and number name Reinforce: 1, 2, 3 Reinforce: one, two, three Number symbol: 2, 3, 4 Number name: two, three, four	**Number symbols: 6, 7, 8** **Number names: six, seven, eight** Represent numbers using: - body (kinaesthetic) - objects (concrete) - pictures, drawings (semi-concrete) - dot cards (semi-concrete) Match with number symbol (abstract) and number name Reinforce: 1, 2, 3, 4, 5 Reinforce: one, two, three, four, five Number symbol: 5, 6, 7 Number name: five, six, seven	Number symbol: 0 to 10 Number name: zero (nought), eight, nine, ten Represent numbers using: - body (kinaesthetic) - objects (concrete) - pictures, drawings (semi-concrete) - dot cards (semi-concrete) Match with number symbol (abstract) and number name Reinforce all numbers
NUMBER RECOGNITION					
1.4	**Use numbers in familiar contexts**	Use numbers in familiar contexts: - age - numbers in pictures and dot cards - number card games - attendance register	Use numbers in familiar contexts: - address - numbers in pictures and dot cards - number card games - numbers in adverts/ flyers/birthday cards - attendance register	Use numbers in familiar contexts: - address, contact numbers - birthday - numbers in pictures and dot cards - number card games - numbers in adverts/ flyers/birthday cards - attendance register	Use numbers in familiar contexts: - address, contact numbers - numbers in pictures and dot cards - number card games - numbers in adverts/ flyers/birthday cards - attendance register
NUMBER SENSE (RELATIONSHIPS) **Describe, compare and order numbers**					
1.4	**Identify and describe whole numbers**	**Number range: 1–3** Identify and describe whole numbers up to 1, 2, 3 using collections and symbols (one more, one less than; before, after, between) Number range: 1	**Number range: 1–5** Identify and describe whole numbers 4, 5 using collections and symbols Reinforce numbers 1–3	**Number range: 1–8** Identify and describe whole numbers 6, 7, 8 using collections and symbols Reinforce numbers 1–5 Number range: 1–7	**Number range: 0–10** Identify and describe whole numbers 0, 9, 10 Reinforce numbers 1–8

	HLOGOTABA	KOTARA YA 1	KOTARA YA 2	KOTARA YA 3	KOTARA YA 4
1.3	**Dikapalo le mainapalo** **Temogo le tsebo ya dikapalo le mainapalo**	**Dikapalo: 1, 2, 3** **Mainapalo: tee, pedi, tharo** Palo e ka emelwa ke: - mmele (tirišo ya ditho tša mmele) - didirišwa (go swarega) - diswantšho, dithalwa (tša go bonwa fela di sa swarege) - dikarata tša marontho (tša go bonwa fela di sa swarege) Tswalanya sekapalo (go gopolwa) le leinapalo Sekapalo: 1 Leinapalo: tee	**Dikapalo: 4 le 5** **Mainapalo: nne, hlano** Palo e ka emelwa ke: - mmele (tirišo ya ditho tša mmele) - didirišwa (go swarega) - diswantšho, dithalwa (tša go bonwa fela di sa swarege) - dikarata tša marontho (tša go bonwa fela di sa swarege) Tswalanya sekapalo (go gopolwa) le leinapalo Gatelela: 1, 2, 3 Gatelela: tee, pedi, tharo Sekapalo: 2, 3, 4 Leinapalo: pedi, tharo, nne	**Dikapalo: 6, 7, 8** **Mainapalo: tshela, šupa, seswai** Palo e ka emelwa ke: - mmele (tirišo ya ditho tša mmele) - didirišwa (go swarega) - diswantšho, dithalwa (tša go bonwa fela di sa swarege) - dikarata tša marontho (tša go bonwa fela di sa swarege) Tswalanya sekapalo (go gopolwa) le leinapalo Gatelela: 1, 2, 3, 4, 5 Gatelela: tee, pedi, tharo, nne, hlano Sekapalo: 5, 6, 7 Leinapalo: hlano, tshela, šupa	Dikapalo: 0 go fihla ka 10 Mainapalo: lefeela, seswai, senyane, lesome Palo e ka emelwa ke: - mmele (tirišo ya ditho tša mmele) - didirišwa (go swarega) - diswantšho, dithalwa (tša go bonwa fela di sa swarege) - dikarata tša marontho (tša go bonwa fela di sa swarege) Tswalanya sekapalo (go gopolwa) le leinapalo Gatelela dinomoro ka moka
TEMOGO YA DINOMORO					
1.4	**Tšhomišo ya dinomoro ka mokgwa wa tlwaelo**	Šomiša dinomoro ka mokgwa wa tlwaelo: - ngwaga - dinomoro diswantšhong le dikarateng tša marontho - papadi ya dikarata tša dinomoro - retšistara ya bao ba lego gona	Šomiša dinomoro mabakeng a go tlwaelega: - aterese - dinomoro diswantšhong le dikarateng tša marontho - papadi ya dikarata tša dinomoro - dinomoro dipapatšong/ tshedimošong/ dikarata tša matswalo - retšistara ya bao ba lego gona	Šomiša dinomoro mabakeng a go tlwaelega: - aterese, dinomoro tša mogala - matšatši a matswalo - dinomoro diswantšhong le dikarateng tša marontho - papadi ya dikarata tša dinomoro - dinomoro dipapatšong/ tshedimošong/ dikarata tša matswalo - retšistara ya bao ba lego gona	Šomiša dinomoro mabakeng a go tlwaelega: - aterese, dinomoro tša mogala - dinomoro diswantšhong le dikarateng tša marontho - papadi ya dikarata tša dinomoro - dinomoro dipapatšong/ tshedimošong/ dikarata tša matswalo - retšistara ya bao ba lego gona
PALOKWEŠIŠO/KWEŠIŠO YA DINOMORO (TSWALANO) **Hlaloša, bapetša le go beakanya dinomoro**					
1.4	**Go šupa/laetša le go hlatholla dipalotlalo**	**Tlhatlamano/ tatelano ya dinomoro: 1–3** Go laetša le go hlatholla dinomoro 1, 2, 3 o šomiša kgoboketšo le sekapalo (e tee ka godimo, e tee ka tlase; ka pele, ka morago, magareng) Nomoro: 1	**Tlhatlamano/ tatelano ya dinomoro: 1–5** Go laetša le go hlatholla dinomoro 4, 5 o šomiša kgoboketšo le sekapalo Gatelela dinomoro 1–3	**Tlhatlamano/ tatelano ya dinomoro: 1–8** Go laetša le go hlatholla dinomoro 6, 7, 8 o šomiša kgoboketšo le sekapalo Gatelela dinomoro 1–5 Dinomoro: 1–7	**Tlhatlamano/ tatelano ya dinomoro: 0–10** Go laetša le go hlatholla dinomoro 0, 9, 10 Gatelela dinomoro 1–8

	TOPIC	TERM 1	TERM 2	TERM 3	TERM 4
	Compare numbers	Compare which of two given collections of objects are: - big, small - bigger, smaller - biggest, smallest Order more than two given collections of objects from smallest to biggest and biggest to smallest Many and fewer, e.g. incidental clapping, snack time, sharing equipment	Compare which of two given collections of objects are: - big, small - bigger, smaller - biggest, smallest More than, less than, equal to Many and fewer, e.g. incidental clapping	More than, less than, equal to Many and fewer Ask questions: 'Which was most/least?'	More than, less than, equal to Many and fewer Ask questions: 'Which was most/least?'
			Make equal groups (sets) of objects, e.g. children or objects in the classroom	Use objects to make equal groups (sets)	Use objects to make equal groups (sets)
		Breaking down and building up collections of 2 and 3, e.g. 3 could be: 1 and 1 and 1 OR 2 and 1 OR 1 and 2 OR nothing (zero) and 3	Breaking down and building up collections of 4 and 5, e.g. 4 could be: 1 and 1 and 1 and 1 OR 3 and 1 OR 2 and 2 OR nothing (zero) and 4	Use manipulatives to investigate and develop strategies for breaking down and building up collections to 8	Use manipulatives to investigate and develop strategies for breaking down and building up collections to 10
	Order (sequence) numbers	Order more than two given collections of objects from smallest to biggest and biggest to smallest	Order more than two given collections of objects from smallest to biggest and biggest to smallest	Order collections of objects from smallest to biggest and biggest to smallest	Order collections of objects from smallest to biggest and biggest to smallest Match number symbol card to collections
		Incidental ordering of numbers 'What comes next, after, between': - number/washing line - number track or ladder - number cards	Place number symbols in the correct counting order 'What comes next, after, between': - number/washing line - number track or ladder - number cards	Place number symbols in the correct counting order 'What comes next, after, between': - number/washing line - number track or ladder - number cards	Incidental: Number range: 0–10 Place number symbols in the correct counting order 'What comes next, after, between': - number/washing line - number track or ladder - number cards

	HLOGOTABA	KOTARA YA 1	KOTARA YA 2	KOTARA YA 3	KOTARA YA 4
	Bapetša dinomoro	Bapetša dikgobokanyo gore ke efe ya tše pedi yeo e lego ye: - kgolo, nyenyane - kgolwane, nyenyane - kgolokgolo, nnyane ka go fetiša Beakanya didirišwa tša go feta tše pedi go tšeo o di filwego go tloga go ye nnyane ka go fetiša le kgolwanyana go ya go nnyane ka go fetiša Ntši le mmalwa, mohl. go phaphatha ga sewelo, nako ya dijo, arolelana/ abelana didirišwa	Bapetša dikgobokanyo gore ke efe ya tše pedi yeo e lego ye: - kgolo, nyenyane - kgolwane, nyenyane - kgolokgolo, nnyane ka go fetiša Ntši go feta, nyenyane go, lekana le Ntši le mmalwa, mohl. go phaphatha ga sewelo	Ntši go feta, nnyane go, lekana le Ntši le nyenyane Botšiša dipotšišo: 'Ke difetše ntši/ mmalwa?'	Ntši go feta, nnyane go, lekana le Ntši le nyenyane Botšiša dipotšišo: 'Ke difetše ntši/ mmalwa?'
			Lekanya dihlopha (disete) tša didirišwa, mohl. bana goba dilo tšeo di lego ka phapošeng	Šomiša dilo tšeo di le go ka phapošeng go lekanya dihlopha (disete)	Šomiša dilo tšeo di le go ka phapošeng go lekanya dihlopha (disete)
		Arola le go hlakanya 2 le 3, mohl. 3 e ka ba: 1 le 1 le 1 GOBA 2 le 1 GOBA 1 le 2 GOBA lefeela le 3	Arola le go hlakanya 4 le 5, mohl. 4 e ka ba: 1 le 1 le 1 le 1 GOBA 3 le 1 GOBA 2 le 2 GOBA lefeela le 4	Šomiša dithušathuto go nyakišiša le go godiša tsebo ya go arola le go hlakanya go fihla 8	Šomiša dithušathuto go nyakišiša le go godiša tsebo ya go arola le go hlakanya go fihla 10
	Dinomorotatelano	Beakanya dilo tša go feta tše pedi go tloga nnyane ka go fetiša le kgolwanyana go ya go nnyane ka go fetiša	Beakanya dilo tša go feta tše pedi go tloga nnyane ka go fetiša le kgolwanyana go ya go nnyane ka go fetiša	Beakanya dilo go tloga nnyane ka go fetiša le kgolwanyana go ya go nnyane ka go fetiša	Beakanya dilo go tloga nnyane ka go fetiša le kgolwanyana go ya go nnyane ka go fetiša Tswalanya dikarata tša dikapalo
		Go beakanya dinomoro ka sewelo 'Go latela efe, ka morago, magareng': - nomoro mothalading - tatelano ya dinomoro goba leleri - dikarata tša dinomoro	Go beakanya sekapalo ka tatelano ya maleba 'Go latela efe, ka morago, magareng': - nomoro mothalading - tatelano ya dinomoro goba leleri - dikarata tša dinomoro	Go beakanya sekapalo ka tatelano ya maleba 'Go latela efe, ka morago, magareng': - nomoro mothalading - tatelano ya dinomoro goba leleri - dikarata tša dinomoro	Sewelo: Dinomoro: 0–10 Beakanya sekapalo ka tatelano ya maleba 'Go latela efe, ka morago, magareng': - nomoro mothalading - tatelano ya dinomoro goba leleri - dikarata tša dinomoro

	TOPIC	TERM 1	TERM 2	TERM 3	TERM 4
	Ordinal numbers	Incidentally develop an awareness of first, second, third … last, next Introduce during: - refreshment/snack time and toilet routine - in everyday contexts, across subjects, lining up, e.g. 'Who was first/ last/second to come in the door'	Incidentally develop an awareness of first, second, third, fourth, last, next In everyday contexts: daily routine – lining up, snack time, toilet routine Integrate: Life Skills, physical development and art activities (where appropriate), outdoor activities, e.g. races Line up objects or manipulatives and discuss position	Incidentally develop an awareness of first, second, third, fourth, fifth, last, next Reinforce ordinal numbers in the daily routine and integrate during the day and in outdoor activities, e.g. races Place learners and objects in a row and identify ordinal position in one direction, e.g. left to right	Incidentally develop an awareness of first, second, third, fourth, fifth, sixth, last, next Reinforce ordinal numbers in the daily routine and integrate during the day and in outdoor activities, e.g. races Place learners and objects in a row and identify ordinal position in both directions, e.g. left to right and right to left
1.5	**Place value**	No CAPS content for Grade R (focus on number concept of numbers 1–9 and zero, 1.1 and 1.4)			
SOLVE PROBLEMS IN CONTEXT					
1.6	**Problem-solving techniques**	**Number range: 1–3** Solve problems in everyday contexts Uses the following techniques: - concrete apparatus, e.g. counters - counting all in ones	**Number range: 1–5** Solve problems in everyday contexts Uses the following techniques: - concrete apparatus, e.g. counters - physical number ladder - ten structure beads - counting all in ones Number range: 1–4	**Number range: 1–8** Solve problems in everyday contexts Uses the following techniques: - concrete apparatus, e.g. counters - physical number ladder - ten structure beads - counting all in ones - counting on Number range: 1–7	**Number range: 0–10** Solve problems in everyday contexts Uses the following techniques: - concrete apparatus, e.g. counters - physical number ladder - ten structure beads - counting all in ones - counting on Number range: 0–10
1.7	**Addition and subtraction** Orally solve word problems (story sums) and explain own solutions to problems involving addition and subtraction with answers up to 10	Investigate addition and subtraction in everyday activities through the use of manipulatives and stories Orally solve problems that involve numbers 1–3 using counters, stories, pictures	Orally solve problems that involve numbers 1–5 using objects, stories, pictures Use counters and orally solve problems that involve the numbers 2, 3 and 4 Reinforce the solving of problems that involve numbers 1 to 4	Orally solve problems that involve numbers 1–8 using objects, stories, pictures Introduce terminology (add to/add, take away/ subtract) Use counters and orally solve problems that involve the numbers 5, 6 and 7 Reinforce the solving of problems that involve numbers 1 to 7	Orally solve problems that involve numbers 0–10 using objects, stories and pictures Use terminology (add and subtract) Use counters and orally solve problems that involve the numbers 8, 9 and 10 Reinforce the solving of problems that involve numbers 1 to 10
1.8	**Repeated addition leading to multiplication**	No CAPS content for Grade R			

	HLOGOTABA	KOTARA YA 1	KOTARA YA 2	KOTARA YA 3	KOTARA YA 4
	Tatelano ya dinomoro	Godiša tsebo ya botee, bobedi, boraro … mafelelo, go latela Go tsebiša ka nako ya: - nako ya go ikhutša/ ja le nako ya go ya boithomelong - ka mehla, dithutong ka moka, mothalading, mohl. 'Ke mang wa pele/ mafelelo/ bobedi wa mafelelo go tšwa mojako'	Godiša tsebo ya botee, bobedi, boraro, bone, mafelelo, go latela Ke nako ya go tsebiša: nako ya go ikhutša – nako ya go ja le nako ya go ya boithomelong Tswalanya: Mabokgoni a Bophelo, go ikatiša le bokgabo (ge go kgonega), mešomo ya ka ntle, mohl. go kitima Beakanya dilo tša go fapana goba dithušathuto gomme le bolele ka boemo ba tšona	Godiša tsebo ya botee, bobedi, boraro, bone, bohlano, mafelelo, go latela Gatelela palotšhupatatelano ge ba dira mešomo ya ka mehla bjalo ka go raloka ka ntle, mohl. go kitima Beakanya barutwana goba dilo ka mothaladi gomme o tsebiše tatelano go ya lehlakoreng le tee, mohl. go tloga go la nngele go ya go la go ja	Godiša tsebo ya botee, bobedi, boraro, bone, bohlano, boselela, mafelelo, go latela Gatelela palotšhupatatelano ge ba dira mešomo ya ka mehla bjalo ka go bapala ka ntle, mohl. go kitima Beakanya barutwana goba dilo ka mothaladi gomme o tsebiše tatelano go ya lehlakoreng le tee, mohl. go tloga go la nngele go ya go la go ja le go tloga go la go ja go ya go la nngele
1.5	**Maemo a nomoro**	Go ya ka lenaothuto ka gare ga SEPHOLEKE ga go dithuto ka go Mphatong wa R (hlokomela dinomoro 1–9 le lefeela, 1.1 le 1.4)			
THAROLLO YA DIPALO					
1.6	**Mekgwa ya go rarolla dipalo**	**Dinomoro: 1–3** Tharollo ya dipalo dilong tša ka mehla Šomiša mekgwa ye e latelago: - didirišwa tša go swarega, mohl. dibaledi - go bala dilo ka moka ka nako e tee	**Dinomoro: 1–5** Tharollo ya dipalo dilong tša ka mehla Šomiša mekgwa ye e latelago: - didirišwa tša go swarega, mohl. dibaledi - leleri la dinomoro - diphetha tša go bopega ka lesome - go bala dilo ka moka ka nako e tee Dinomoro: 1–4	**Dinomoro: 1–8** Tharollo ya dipalo dilong tša ka mehla Šomiša mekgwa ye e latelago: - didirišwa tša go swarega, mohl. dibaledi - leleri la dinomoro - diphetha tša go bopega ka lesome - go bala dilo ka moka ka nako e tee - go bala go tšwela pele Dinomoro: 1–7	**Dinomoro: 0–10** Tharollo ya dipalo dilong tša ka mehla Šomiša mekgwa ye e latelago: - didirišwa tša go swarega, mohl. dibaledi - leleri la dinomoro - diphetha tša go bopega ka lesome - go bala dilo ka moka ka nako e tee - go bala go tšwela pele Dinomoro: 0–10
1.7	**Go hlakantša le go ntša** Go rarolla dipalontšu ka polelo (dipalokanegelo) le go hlaloša ditharollo tša palontšu go akaretša go hlakantša le go ntša – dikarabo tša go fihla ka 10	Nyakišiša ka go hlakanya le go ntša ka dilo tša ka mehla o ka šomiša le dithušathuto goba dikanegelo Ka polelo (go bolela) rarolla dinomoro 1–3 ka go šomiša dibaledi, dikanegelo le diswantšho	Ka polelo (go bolela) rarolla dinomoro 1–5 ka go šomiša dibaledi, dikanegelo le diswantšho Šomiša dibaledi ka go bolela/rarolla mathata a dinomoro 2, 3 le 4 Gatelela go roralla mathata a dinomoro 1 go fihla ka 4	Ka polelo (go bolela) rarolla dinomoro 1–8 ka go šomiša dibaledi, dikanegelo le diswantšho Tsebiša tlotlontšu ye mpsha (hlakanya le/hlakanya, tloša/ ntša) Šomiša dibaledi ka go bolela/rarolla mathata a dinomoro 5, 6 le 7 Gatelela go roralla mathata a dinomoro 1 go fihla ka 7	Ka polelo (go bolela) rarolla dinomoro 0–10 ka go šomiša dibaledi, dikanegelo le diswantšho Tsebiša tlotlontšu ye mpsha (hlakanya le/hlakanya, tloša/ ntša) Šomiša dibaledi ka go bolela/rarolla mathata a dinomoro 5, 6, le 8, 9 le 10 Gatelela go roralla mathata a dinomoro 1 go fihla ka 10
1.8	**Go boeletša go hlakanya le go atiša**	Go ya ka lenaothuto ka gare ga SEPHOLEKE ga go dithuto ka go Mphatong wa R			

	TOPIC	TERM 1	TERM 2	TERM 3	TERM 4
1.9	**Grouping and sharing leading to division (equal sharing and grouping with whole numbers up to 10 with answers that incl. remainders)**	Introduce concept of equal sharing: - during daily activities - stories and pictures - one-to-one sharing	Equal sharing: - during daily activities - stories and pictures - one-to-one sharing	Equal sharing: - grouping - half - use concrete objects	Equal sharing: - grouping - half and double - use concrete objects
1.10	**Sharing leading to fractions**	No CAPS content for Grade R (focus on problem solving with remainders that can be shared, 1.9)			
1.11	**Money**		Develop an awareness of South African coins: 10c, 20c, 50c, R1, R2, R5 Identify colour and animals Identify similarities and differences Sort play money according to colour and size Provide play money in the house corner	Develop an awareness of South African bank notes: R10, R20, R50, R100, R200 Identify similarities and differences between notes Sort play money according to colour and size Provide play money in the house corner	Provide play money in the house corner
CONTEXT-FREE CALCULATIONS: OPERATIONS					
1.12	**Techniques**	No CAPS content for Grade R (focus on counting all and counting on, 1.1 and 1.6)			
1.13	**Addition and subtraction: solves verbally-stated addition and subtraction problems**		Number range: 1–5 Orally solves addition and subtraction problems with solutions up to 5 Number range: 1–4	Number range: 1–8 Orally solves addition and subtraction problems with solutions up to 8 Number range: 1–7	Number range: 1–10 Orally solves addition and subtraction problems with solutions up to 10 Number range: 1–10
1.14	**Repeated addition leading to multiplication**	No CAPS content for Grade R			
1.15	**Division**	No CAPS content for Grade R (focus on equal sharing, 1.9)			
1.16	**Mental maths**	Begin each whole class and teacher-guided activity with mental maths and do mental maths where incidental learning opportunities arise Counting everyday objects Counting forwards and backwards Ordinal counting Estimating Problem solving Memory games			
1.17	**Fractions**	No CAPS content for Grade R (focus on equal sharing, 1.9)			

	HLOGOTABA	KOTARA YA 1	KOTARA YA 2	KOTARA YA 3	KOTARA YA 4
1.9	Go kgoboketša le go abaganya maele (go abelana ka go lekana le go hlopha dipalotlalo go fihla go 10 ka dikarabo tšeo di akaretšago mašaledi)	Go tebiša go abaganya/ arola ka go lekana: - ka nako ya mešomo - dikanegelo le diswantšho - nako ya go abelana	Arola ka go lekana: - ka nako ya mešomo - dikanegelo le diswantšho - nako ya go abelana	Arola ka go lekana: - dihlopha - seripa - go šomiša didirišwa tša go fapana	Arola ka go lekana: - dihlopha - seripa le gabedi - go šomiša didirišwa tša go fapana
1.10	Go abelana le dipalophatlo	Go ya ka lenaothuto ka gare ga SEPHOLEKE ga go dithuto ka go Mphatong wa R (boeletša tharollo ya dipalo, mašeledi le dipalophatlo, 1.9)			
1.11	Tšhelete		Godiša tsebo ya tšhelete ya Afrika Borwa dikhoine: 10c, 20c, 50c, R1, R2, R5 Tseba mebala le diphoofolo Tseba diphapano le ditshwano Hlaola tšhelete go ya ka mmala le bogolo Bea tšhelete yeo e sego ya nnete tafoleng/sekhutlong ka phapošeng	Godiša tsebo ya tšhelete ya Afrika Borwa pampiri: R10, R20, R50, R100, R200 Tseba diphapano le ditshwano magare ga tšhelete ya pampiri Hlaola tšhelete go ya ka mmala le bogolo Bea tšhelete yeo e sego ya nnete tafoleng/sekhutlong ka phapošeng	Bea tšhelete yeo e sego ya nnete tafoleng/sekhutlong ka phapošeng
PALELO YA GO HLOKA KAMANO/PALELO YA GO IKEMELA: DITIRAGALO					
1.12	Mekgwa/ Dithekniki	Go ya ka Lenaothuto ka gare ga SEPHOLEKE ga go dithuto ka go Mphatong wa R (boeletša go bala ka moka le go bala ka, 1.1 le 1.6)			
1.13	Go hlakanya le go ntšha: go rarolla dipalo ka go bolela ka go hlakanya le go ntšha		Dinomoro: 1–5 Ka polelo rarolla dipalo tša go hlakantša le go ntšha tšeo dikarabo tša tšona di fihlago ka 5 Dinomoro: 1–4	Dinomoro: 1–8 Ka polelo rarolla dipalo tša go hlakantša le go ntšha tšeo dikarabo tša tšona di fihlago ka 8 Dinomoro: 1–7	Dinomoro: 1–10 Ka polelo rarolla dipalo tša go hlakantša le go ntšha tšeo dikarabo tša tšona di fihlago ka 10 Dinomoro: 1–10
1.14	Go boeletša go hlakanya le go atiša	Go ya ka lenaothuto ka gare ga SEPHOLEKE ga go dithuto ka go Mphatong wa R			
1.15	Go arola	Go ya ka lenaothuto ka gare ga SEPHOLEKE ga go dithuto ka go Mphatong wa R (boeletša o abaganye, 1.9)			
1.16	Menthele	Thoma mešomo ya phapoši ka moka yeo e hlahlwago ke morutiši ka menthele mme o tšwelepele ka go ruta menthele ge go kgonega. Go bala didirišwa tša ka mehla Go balela pele le morago Palotatelano Akanya Rarolla dipalo Dipadi tša monagano/dikgopolo			
1.17	Palopatlo	Go ya ka lenaothuto ka gare ga SEPHOLEKE ga go dithuto ka go Mphatong wa R (boeletša o abaganye, 1.9)			

2. PATTERNS, FUNCTIONS and ALGEBRA					
	TOPIC	**TERM 1**	**TERM 2**	**TERM 3**	**TERM 4**
2.1 GEOMETRIC PATTERNS					
Identify patterns		Identify patterns in familiar everyday environment, e.g. clothes, objects and environment Recognise the 'repeat' in patterns			
Copy and extend simple repeating patterns using physical objects and drawings		Copy and complete patterns Copy patterns using body percussion Copy, complete and create own patterns Introduce language: What comes next? What comes before? How is it the same? How is it different?	Copy and extend patterns with pictures Copy a given pattern using coins Describe the repeat in patterns Copy a given pattern using 3-D concrete objects and 2-D shapes, coins, beads, etc.	Copy and extend own pattern with pictures Copy vertical and horizontal patterns using concrete objects Extend simple repeating patterns	Copy and extend own patterns with pictures Copy a noise (sound/ auditory) pattern Use physical objects and draw patterns
Creates own repeating patterns		Create own pattern using physical objects, drawings, geometric patterns Explain own pattern (repeating rule): - one colour, two shapes - one shape, two colours	Create own pattern with pictures Explain own pattern (repeating rule): - two colours, two shapes - two shapes, two colours	Create own pattern with pictures Explain own pattern (repeating rule): - three/four colours, different shape, etc.	Create own pattern Explain own pattern (repeating rule): - three/four colours, different shape, etc.
2.1	**Number patterns**	No CAPS content for Grade R (focus on counting: ordering numbers in ones and twos, 1.2)			

2. DIPATRONE, DIFANKŠENE le ALTŠEBRA					
	HLOGOTABA	**KOTARA YA 1**	**KOTARA YA 2**	**KOTARA YA 3**	**KOTARA YA 4**
2.1 SEKAELO SA TŠEOMETRI					
	Tseba dipaterone/ moakanyetšo	Lemoga dipaterone tša go tlwaelega tšeo di lego tikologong, mohl. diaparao, didirišwa le sebaka Lemoga dilo ge di 'boeletšwa'			
	Go kopolla le go katološa dipaterone tše bonolo ka go šomiša ya didirišwa le dithalwa	Go kopolla le go feleletša dipaterone Go ekiša dipaterone ka go dira modumo ka ditho tša mmele Kopolla, feleletša le go itlhamela dipaterone Hlagiša polelo: Go latela eng? Go tla eng pele? Di swana bjang? Di fapana bjang?	Go kopolla le go katološa dipaterone ka diswantšho Gatiša paterone ya khoine Hlaloša paterone leboeletša Kopolla dipaterone tša didirišwa tša dilo tša 3-D le dibopego tša 2-D, dikhoine, dipheta, bj.bj.	Go kopolla le go katološa dipaterone ka diswantšho Kopolla dipaterone tša didirišwa tša ka ntlele tša go tsepama le tša sephara Katološa dipaterone tša bonolo ka go di boeletša	Go kopolla le go katološa dipaterone ka diswantšho Go ekiša paterone ya modumo (modumo/ go kwa) Šomoša didiršwa tša ka mehla go thala dipaterone
	Itlhamela dipaterone leboeletša	Itlhamele dipaterone ka go šomiša didirišwa, dithalwa, dipaterone tša tšeometri Hlaloša paterone yeo ba itlhametšego (boeletša melao): - mmala o tee, dibopego tše pedi - sebopego se tee, mebala ye mebedi	Itlhamele dipaterone ka diswantšho Hlaloša paterone yeo ba itlhametšego (boeletša melao): - mebala e mebedi, dibopego tše pedi - dibopego tše pedi, mebala ye mebedi	Itlhamele dipaterone ka diswantšho Hlaloša paterone yeo ba itlhametšego (boeletša melao): - tharo/nne mebala, dibopego tša go fapana, bj.bj.	Itlhamele dipaterone Hlaloša paterone yeo ba itlhametšego (boeletša melao): - tharo/nne mebala, dibopego tša go fapana, bj.bj.
2.1	**Dipaterone tša dipalo/dinomoro**	Go ya ka lenaothuto ka gare ga SEPHOLEKE ga go dithuto ka go Mphatong wa R (boeletša go bala: go beakanya dinomoro ka botee le bobedi, 1.2)			

3. SPACE and SHAPE (GEOMETRY)					
	TOPIC	**TERM 1**	**TERM 2**	**TERM 3**	**TERM 4**
3.1	**Position, orientation and views** Describes one 3-D object in relation to another (e.g. in front and behind)	Spatial relationships Position of the child in relation to their surroundings Position of two or more objects in relation to the learner: - in front of and behind - on, on top, under, below - in and out, inside and outside - up and down - next to and between	Spatial relationships Position of the child in relation to their surroundings Position of two or more objects in relation to the learner: - on and under - on top of and underneath - in front of and behind	Spatial relationships Position of two or more objects in relation to each other and to one another: - in front of and behind - on, on top, under, bottom and below - next to - middle - left and right - pegboard work Describe objects from different perspectives, e.g. a doll house from the front, the back, the side depending on where you stand	Spatial relationships Position of two or more objects in relation to each other and to the learners and in relation to one another: - in front of and behind - on top of, under, above, below - top and bottom - next to, between and middle - left and right The position of two or more objects in relation to each other
	Follow directions (alone and/or as a member of a group or team) to move/ place self within a specific space (directionality)	Directionality – forwards and backwards Up and down Games such as tracking the train Obstacle course – following a direction Physical Education and music	Directionality – forwards and backwards Obstacle course – following a direction Outdoor activities Incidental: left and right	Forwards and backwards Arrow chart Left and right	Forwards and backwards Up and down Upwards and downwards Left and right Where does the sound come from?
3.2	**3-D objects**				
	Recognise, identify and name three-dimensional objects in the classroom	Introduce and explore Compare and sort: - balls - boxes with square and rectangular faces (sides)			

3. SEKGOBA le SEBOPEGO (TŠEOMETRI)					
	HLOGOTABA	**KOTARA YA 1**	**KOTARA YA 2**	**KOTARA YA 3**	**KOTARA YA 4**
3.1	**Maemo, peakanyo le pono** Hlaloša selo se tee sa 3-D gore se tswalana bjang le tše dingwe (mohl. ka pele le ka morago)	Tswalano ya sekgoba le dilo Boemo bja ngwana kgahlanong le tikologo Boemo bja didirišwa tše pedi goba go feta kamanong le morutwana: - ka pele ga le ka morago - godimo, godimo ga, ka tlase - ka ntle le ka gare, ka gare le ka ntle - godimo le fase - kgauswi le magareng	Tswalano ya sekgoba le dilo Boemo bja ngwana kgahlanong le tikologo Boemo bja didirišwa tše pedi goba go feta kamanong le morutwana: - godimo le ka fase - ka godimo le ka fase - ka pele ga le ka morago	Tswalano ya sekgoba le dilo Boemo bja didirišwa tše pedi goba go feta ka go amana ka botšona le tše dingwe: - ka pele ga le ka morago - godimo, godimo ga, fase, mafelelong le bofelong - kgaufsi le - gare - la nngele le la go ja - mošomo porotong ya mašobašoba Hlaloša dilo tša tebego ya go fapana, mohl. ka pele ga ntlo ya dipopi, ka morago, ka mahlakoreng go ya ka lehlakore leo morutwana a emego ka go lona	Tswalano ya sekgoba le dilo Boemo bja didirišwa tše pedi goba go feta ka go amana ka botšona le barutwana gammogo le go amana le tše dingwe: - ka pele ga le ka morago - godimo ga, ka tlase, godimo, tlase - mathomong le mafelelong - kgaufsi le, bogare le magareng - la nngele le la go ja Boemo bja didirišwa tše pedi goba go feta
	Go latela ditaelo (ka noši/bjalo ka leloko la sehlopha) go sepela/ipea boemong bjo bo rilego (ditšhuphetšo/ taetšo)	Ditšhupetšo – pele le morago Godimo le fase Dipapadi, bjalo ka mehlala ya setimela Go latela melao – lepatlelong le ditšhitišo Dithuto tša go Ikatiša le mmino	Ditšhupetšo – pele le morago Go latela melao – lepatlelong le ditšhitišo Dithaloko tša ka ntle Sewelo: la nngele le la go ja	Pele le morago Tšhate ya maswao La nngele le la go ja	Pele le morago Godimo le fase Fase le godimo La nngele le la go ja Modumo o tšwa kae?
3.2	**Dilo tša 3-D**				
	Lemoga, tseba le go fa leina la didirišwa tša mahlokoretharo (3-D) ka phapošeng	Go tsebiša le go nyakišiša Go bapetša le go hlaola: - dikgwele - mapokisi a sekwere le a khutlonnethwii (mahlakore)			

	TOPIC	TERM 1	TERM 2	TERM 3	TERM 4
	Describe, sort and compare 3-D objects	Introduce Tidy-up chart (sorting toys) Sort 3-D objects according to (one attribute): - size (big/small) - colour - shape Identify and explore 3-D objects: flat, round, square or rectangular shape Objects that roll Objects that slide	Sort 3-D objects according to similarities and differences: - size - colour - shape	Sort 3-D objects according to similarities and differences (two attributes): - size - colour - shape Explore 3-D objects: flat, round, square or rectangular shape	Sort 3-D objects according to (two or more attributes): - size - colour - shape Explore 3-D objects: flat, round, square or rectangular shape
	Build 3-D objects	**Ongoing** Provide building blocks and construction materials during free play inside on a daily basis Explore with building blocks	**Ongoing** Provide building blocks and construction materials during free play inside on a daily basis Explore with building blocks Use building blocks and recycled materials to build own constructions	**Ongoing** Provide building blocks and construction materials during free play inside on a daily basis Build own construction by copying from a given construction example Copy the same construction from a design or picture card	**Ongoing** Provide building blocks and construction materials during free play inside on a daily basis Ongoing during free play inside
3.3	**2-D shapes**				
	Recognise, identify and name two-dimensional shapes in the classroom	Introduce Tidy-up/ Helper's chart Recognise learner symbol and name Introduce 2-D shapes: circle, square, triangle, rectangle Puzzles (minimum 6 pieces)	Recognise learner symbol and name Recognise, identify and name 2-D shapes: circle, square and triangle Puzzles (minimum 12 pieces)	Recognise and identify learner name Reinforce: circle, square, triangle Compare rectangles and squares Puzzles (minimum 18 pieces)	Identify learner name Reinforce: rectangle Recognise, identify and name 2-D shapes: circle, square, triangle, rectangle Puzzles (minimum 24 pieces)
	Describe, sort and compare 2-D shapes	Sort 2-D shapes according to: - colour - shape Circle: curved line Square: 4 sides, straight lines, corners Triangle: 3 sides, straight lines, corners	Sort 2-D shapes according to similarities and differences: - shape Reinforce triangle Reinforce circle and square	Sort 2-D shapes according to: - colour - shape (curved line, three or four lines) Reinforce circle, square and triangle	Sort 2-D shapes according to: - size - colour - shape

	HLOGOTABA	KOTARA YA 1	KOTARA YA 2	KOTARA YA 3	KOTARA YA 4
	Hlaloša, hlaola le go bapetša dilo tša 3-D	Ba tsebiše tšhate ya go hlwekiša (go hlaola dibapadišwa) Hlaola dilo tša 3-D go latela e (tee ka): - bogolo (nyane/ kgolo) - mmala - sebopego Lemoga le go utolla dilo tša 3-D: phaphathi, sediko, khutlonne le khutlonnethwii Dilo tša go kgokologa Dilo tša go thelela	Hlaola dilo tša 3-D tša go swana le tša go fapana ka: - bogolo - mmala - sebopego	Hlaola dilo tša 3-D ka go swana le go fapana ga tšona (šomiša dika tša tšona tše pedi): - bogolo - mmala - sebopego Utolla dilo tša 3-D: phaphathi, sediko, khutlonne le khutlonnethwii	Hlaola dilo tša 3-D ka go swana le go fapana ga tšona (šomiša dika tša tšona tše pedi goba go feta): - bogolo - mmala - sebopego Utolla dilo tša 3-D: phaphathi, sediko, khutlonne le khutlonnethwii
	Aga dilo tša 3-D	**Tšwelelago** Efa barutwana dibapadišwa tša go aga ka mehla ka nako ya thaloko ka go lokologa Ba ithute ka dibapadišwa tša go aga	**Tšwelelago** Efa barutwana dibapadišwa tša go aga ka mehla ka nako ya thaloko ka go lokologa Ba ithute ka dibapadišwa tša go aga Ba ka šomiša dibapadišwa tša go aga goba dilo tše dingwe go hlama meago ya bona	**Tšwelelago** Efa barutwana dibapadišwa tša go aga ka mehla ka nako ya thaloko ka go lokologa Ba age se sengwe ka go lebelela dilo tšeo di agilwego Ba ka ekiša seo ba se bonago se agilwe goba seo ba se bonago dikarateng tša diswantšho	**Tšwelelago** Efa barutwana dibapadišwa tša go aga ka mehla ka nako ya thaloko ka go lokologa Ba tšwelele go dira bjalo ka nako ya dithaloko ka go lokologa
3.3	**Dibopego tša 2-D**				
	Lemoga, šupa le go tseba leina la dibopego tša mahlakorepedi ka phapošeng	Ba rute ka go hlwekiša/tšhate ya go thuša Ba lemoge leswao la morutwana le leina Ba bontšhe dibopego tša 2-D: sediko, khutlonne, khutlotharo, khutlonnethwii Marara (bonnyane diripa tše 6)	Ba lemoge leswao la morutwana le leina Ba bontšhe dibopego tša 2-D: sediko, khutlonne, khutlotharo Marara (bonnyane diripa tše 12)	Ba lemoge le go tseba leina la morutwana Gatelela: sediko, khutlonne, khutlotharo Bapetša dikhutlotharo e dikhutlonne Marara (bonnyane diripa tše 18)	Tseba leina la morutwana Gatelela: khutlonnethwii Lemoga, lemoga le go tseba leina la dibopego tša 2-D: sediko, khutlonne, khutlotharo, khutlonnethwii Marara (bonnyane diripa tše 24)
	Hlaloša, hlaola le go bapetša dibopego tša 2-D	Hlaola dibopego tša 2-D ka: - mmala - sebopego Sediko: mothalo wa nkgokolo Khutlonne: mahlakore a 4, methalo ya go otlologa, dikhutlo Khutlotharo: mahlakore a 3, methalo ya go otlologa, dikhutlo	Hlaola dibopego tša 2-D ka ditshwano le diphapano: - sebopego Gatelela khutlotharo Gatelela sediko le khutlonne	Hlaola dibopego tša 2-D ka: - mmala - sebopego (mothalo wa nkgokolo, methalo ya go lokologa e mebedi goba e mene) Gatelela sediko, khutlonne, khutlotharo, khutlonnethwii	Hlaola dibopego tša 2-D ka: - saese - mmala - sebopego

	TOPIC	TERM 1	TERM 2	TERM 3	TERM 4
	Figure-ground perception **Geometric shapes**	Introduce figure-ground perception (identify objects and shapes – 'I spy with my little eye') Introduce circle, square and triangle	Reinforce figure-ground perception through sorting, matching and grouping activities and tidy-up routine Reinforce triangle Shape conservation (form constancy of triangle)	Reinforce figure-ground perception through sorting, matching and grouping activities and tidy-up routine Reinforce square Shape conservation (form constancy of shapes learnt to date)	Reinforce figure-ground perception through sorting, matching and grouping activities and tidy-up routine Reinforce circle, triangle, square and rectangle Shape conservation (form constancy of shapes learnt to date)
3.4	**Symmetry (Recognise line of symmetry in self, and own environment)**	Identify body parts Awareness of body in terms of: - one's body has two sides - the one side, the other side, leading to left and right - top/bottom - back/front - crossing midline (physical activities) Activities to be done during physical development – using rhymes and songs, and during Creative Arts	Crossing midline – performing actions Applying crossing the midline during Life Skills (physical development) – using rhymes and songs, and during Creative Arts	Crossing midline (chalkboard activities) Applying crossing the midline during Life Skills (physical development)	Develop an awareness that there is symmetry in objects Applying crossing the midline during Life Skills (physical development)

	HLOGOTABA	KOTARA YA 1	KOTARA YA 2	KOTARA YA 3	KOTARA YA 4
	Temogo ya go kwa ka kgopolo	Ba rute temogo ya go kwa ka kgopolo (lemoga dilo le dibopego – 'Ke utswa ka leihlo') Ba rute/lemoše sediko, khutlonne le khutlotharo	Boeletša temogo ya go kwa ka kgopolo, go swantšha le go kgoboketša tša go swana ka nako ya mošomo wa go hlwekiša Gatelela khutlotharo Bolelang ka dibopego (go swana ga dikhutlotharo)	Boeletša temogo ya go kwa ka kgopolo, go swantšha le go kgoboketša tša go swana ka nako ya mošomo wa go hlwekiša Gatelela khutlonne Bolelang ka dibopego (go swana ga dibopego tšeo ba ithutilego tšona)	Boeletša temogo ya go kwa ka kgopolo, go swantšha le go kgoboketša tša go swana ka nako ya mošomo wa go hlwekiša Gatelela sediko, khutlotharo, khutlonne le khutlonnethwii Bolelang ka dibopego (go swana ga dibopego tšeo ba ithutilego tšona)
3.4	**Tekanyo (go lekana)** **(Go lemoga methalo ya go lekana tikologong)**	Lemoga ditho tša mmele Go latela: - mmele o na le mahlakore a mabedi - lehlakore le tee, le lengwe, la nngele le la go ja - godimo/fase - pele/morago - bogare (mešomo ya go itšhidulla) Mešomo yeo e dirwago ka nako ya go aga mmele – tšhomišo ya direto, dikoša le Bokgabo	Mothalogare – go diragatša Go ithuta go taboga mothalogare ka nako ya thuto ya Mabokgoni a Bophelo (go aga mmele) – go šomiša direto le dikoša ka nako ya Bokgabo	Mothalogare (mešomo ya letlapeng) Go ithuta go taboga mothalogare ka nako ya thuto ya Mabokgoni a Bophelo (go aga mmele)	Godiša temogo ya bogare ka dilo tša go fapana Go ithuta go taboga mothalogare ka nako ya thuto ya Mabokgoni a Bophelo (go aga mmele)

4. MEASUREMENT					
	TOPIC	**TERM 1**	**TERM 2**	**TERM 3**	**TERM 4**
4.1	**Time**	Introduce both concepts day/night, light/dark, morning/ afternoon/night (tonight) Introduce **daily programme** with pictures displayed from left to right and arrow to show the activities as the day progresses Introduce **weather chart** (daily) with name of the day, date and month with song and rhyme, flash cards and display labels and symbols and pictures on a calendar representing the week **Days of the week** (daily) sequence learnt through a song or rhyme Indicate birthdays, outings, special days, holidays during the week Sequence months of the year through a song Develop an awareness of the time concept Introduce **seasons chart** summer, autumn, winter, spring Introduce the **birthday chart** and own age, date of birth (day and month) Develop an awareness of reading direction	**Daily programme** (ongoing) Reinforce the sequencing of recurring events in one day **Weather chart** (daily) with day, date and month song and rhyme, flash cards and display labels, symbols and pictures on a weekly calendar **Days of the week** (ongoing) repeat song or rhyme daily Develop an awareness of what the learner does from the time he/she wakes up until going to school Develop an awareness of what happens between suppertime and bedtime **Birthday chart** continuous whenever a learner has a birthday **Seasons chart** summer, autumn, winter, spring	**Daily programme** (ongoing) Reinforce the sequencing of recurring events in one day **Weather chart** (daily) with day, date and month song and rhyme, flash cards and display labels, symbols and pictures on a weekly calendar **Days of the week** (ongoing) **Seasons chart** (ongoing) **Birthday chart** continuous whenever a learner has a birthday	**Daily programme** (ongoing) Reinforce the sequencing of recurring events in one day **Weather chart** (daily) with day, date and month song and rhyme, flash cards and display labels, symbols and pictures on a weekly calendar **Days of the week** (ongoing) **Seasons chart** (ongoing) **Birthday chart** continuous whenever a learner has a birthday

4. KELO					
	HLOGOTABA	**KOTARA YA 1**	**KOTARA YA 2**	**KOTARA YA 3**	**KOTARA YA 4**
4.1	**Nako**	Ruta barutwana ka bošego le mosegare, lesedi/lefsifsi, mesong/mathama/ bošego Ba rute ka **lenaneo la tšatši-ka-tšatši** ka diswantšho tšeo di tlogago go la nngele go ya go la go ja, ka ditšhupetšo tšeo di bontšhago mešomo ge letšatši le tšwela pele Ba rute **tšhate ya seemo sa bosa** (ka mehla) ka leina la letšatši, lehla le kgwedi ka dikoša le direto, dikarata tša dišwantšho le dikarata tša dišwantšho le tša maswao, maswao le dišwantšho mo khalentareng ya beke **Matšatši a beke** (ka mehla) ka dikoša goba direto Matšatši a matswalo, a go ithabiša, a go ikgetha, a maikhutšo a ka ba mafelelong a beke goba gare ga beke Ka dikoša ba rute tatelano ya dikgwedi Ba rute temogo ya nako Ba rute ka **tšhate ya dihla**, lehlabula, seregane, marega le selemo Ba rute le go ba bontšha tšhate ya **matšatsi a matswalo** mengwaga (letšatši le letšatšikgwedi) Aga tsebo ya go bala ditšhupetšo	**Lenaneo la tšatši-ka-tšatši** (tšelela) Gatelela tatelano ya tšeo di diregago ka mahla **Tšhate ya seemo sa boso** (ka mehla) ka matšatši, letšatšikgwedi le kgwedi, direto le dikoša, dikarata tsa dišwantšho le tša maswao, maswao le dišwantšho mo khalentareng ya beke Ba rute ka **matšatši a beke** (tšwelela) bošeletša dikoša goba direto ka mehla Ba rute tšeo ba swanetšego go di dira ge ba tsoga go fihla ka nako yeo ba fihlago sekolong Ba rute ka nako ya dilalelo le nako ya go ya malaong **Tšhate ya matšatši a matswalo** ka mehla ka letšatši a matswalo a o mongwe wa barutwana Ba rute ka **tšhate ya dihla**, lehlabula, seregane, marega le selemo	**Lenaneo la tšatši-ka-tšatši** (tšelela) Gatelela tatelano ya tšeo di diregago ka mahla **Tšhate ya seemo sa boso** (ka mehla) ka matšatši, letšatšikgwedi le kgwedi, direto le dikoša, dikarata tsa dišwantšho le tša maswao, maswao le dišwantšho mo khalentareng ya beke **Tšhate ya matšatši a beke** (tšwelela) **Tšhate ya boso** (tšwelela) **Tšhate ya matšatši a matswalo** ka mehla ka letšatši a matswalo a o mongwe wa barutwana	**Lenaneo la tšatši-ka-tšatši** (tšelela) Gatelela tatelano ya tšeo di diregago ka mahla **Tšhate ya seemo sa boso** (ka mehla) ka matšatši, letšatšikgwedi le kgwedi, direto le dikoša, dikarata tsa dišwantšho le tša maswao, maswao le dišwantšho mo khalentareng ya beke **Tšhate ya matšatši a beke** (tšwelela) **Tšhate ya boso** (tšwelela) **Tšhate ya matšatši a matswalo** ka mehla ka letšatši a matswalo a o mongwe wa barutwana

	TOPIC	TERM 1	TERM 2	TERM 3	TERM 4
4.2	**Length** Concretely compare and order objects using appropriate vocabulary to describe length	During daily routines introduce the concept of length: long and short, tall, taller and tallest Introduce a height chart Learners can compare their heights against something in the class, e.g. cupboard: - measure with hands (visual and incidental) - measure with footprints/feet	During daily routines explore the concept of length: long and short, tall, taller and tallest Compare and order two or more objects by placing them next to each other Use appropriate vocabulary to describe length: longest and shortest, longer and shorter Height chart comparison: learners discover whether they have grown since last term	Estimate the length of different objects Estimate and measure the length of different objects using feet, hands, a piece of string, a stick Height chart comparison: learners discover whether they have grown since last term	Measure the height of learners with a tape measure Height chart comparison: learners discover whether they have grown since last term
4.3	**Mass** Works concretely comparing and ordering objects using appropriate vocabulary	Incidental learning indoors and outdoors Continuous during water and sand play	Incidental learning indoors and outdoors Continuous during water and sand play	Introduce concept of mass by comparing the masses of different objects: - light/heavy - lighter/heavier - lightest/heaviest	Reinforce the language of mass during indoor and outdoor activities
4.4	**Capacity/Volume** Works concretely comparing and ordering objects using appropriate vocabulary	Incidental learning indoors and outdoors: empty/full, more than, less than Continuous during water and sand play	Incidental learning indoor and outdoor activities Water/sand play Use containers to compare amounts using familiar containers	Introduce the measuring concept of capacity by comparing how much various containers hold: - empty/full - more than/less than	Continuous during water and sand play Reinforce the language of capacity/ volume during indoor and outdoor activities
4.5	**Perimeter and Area**	No CAPS content for Grade R			

	HLOGOTABA	KOTARA YA 1	KOTARA YA 2	KOTARA YA 3	KOTARA YA 4
4.2	**Botelele** Beakanya le go bapetša dilo ka go šomišwa tlotlontšu ya maleba go hlaloša botelele	Ka nako ya mešomo ya tšatši ka tšatši ya go tsebiša/ ruta barutwana ka botelele: telele, kopana, teletšana le teleletelele Ba rute ka tšhate ya bogodimo/botelele Barutwana ba ka bapetša botelele bja bona le dilo tše dingwe ka phapošeng, mohl. raka: - ba lekanyetša ka matsogo (go bona le sewelo) - lekanyetša mehlala/ maoto	Ka nako ya mešomo ya tšatši-ka-tšatši ya go nyakišiša ka botelele: telele, kopana, teletšana le teleletelele Bapetša dilo tše pedi goba go feta ka go di bea kgaufsi le kgaufsi Šomiša tlotlontšu ya maleba go hlaloša botelele: telele le kopana, teleletelele le kopanakopana Tšhate ya bogodimo/ botelele: barutwana ba lemoga gore na ba godile ka botelele ge go bapetšwa le kotara ya go feta	Akanya botelele bja dilo tša go fapana Akanya o lekanye botelele bja dilo tša mehuta o šomiša maoto, matsogo, thapo, patla, thapo, kota Tšhate ya bogodimo/ botelele: barutwana ba lemoga gore na ba godile ka botelele ge go bapetšwa le kotara ya go feta	Lekanyetša botelele bja barutwana ka theipi ya go lekanyetša Tšhate ya bogodimo/ botelele: barutwana ba lemoga gore na ba godile ka botelele ge go bapetšwa le kotara ya go feta
4.3	**Boima** Beakanya le go bapetša dilo ka go šomiša tlotlontšu ya maleba go hlaloša boima	Go ithuta ka sewelo ka gare ga phapoši le ka ntle Tšwelapele ka nako ya go ithuta ka santa le meetse	Go ithuta ka sewelo ka gare ga phapoši le ka ntle Tšwelapele ka nako ya go ithuta ka santa le meetse	Ruta/tsebiša barutwana ka boima ka go bapetša dilo tša boima bja go fapana: - bofefo/boima - bofefofefo/ boimaima - bofefonyana/ boimanyana	Gatelela tlotlontšu ya boima ka nako ya dithaloko tša ka phapošeng goba tša ka ntle
4.4	**Mothamo/Bolumu** Beakanya le go bapetša dilo ka go šomišwa tlotlontšu ya maleba go hlaloša mothamo/bolumu	Go ithuta ka sewelo ka phapošeng le ka ntle: ga go selo/go tletše, go feta, ka tlase ga Tšwelapele ka nako ya go ithuta ka santa le meetse	Go ithuta ka sewelo ka phapošeng le ka ntle Nako ya go ithuta ka meetse a santa Šomiša dikotlelwana go bapetša kelo	Ruta/lemoša barutwana ka mothamo ka go bapetša kelo ya dilo tša go fapana: - go hloka selo/ go tlala - go feta/ka tlase ga	Tšwelapele ka nako ya go ithuta ka santa le meetse Gatelela tlotlontšu ya mothamo/bolumu ka nako ya go ithuta ka phapošeng goba ka ntle
4.5	**Legora le Lefelo**	Go ya ka lenaothuto ka gare ga SEPHOLEKE ga go dithuto ka Mphatong wa R			

5. DATA HANDLING					
	TOPIC	**TERM 1**	**TERM 2**	**TERM 3**	**TERM 4**
5.1	**Collect and sort objects** Collect and sort physical objects according to one attribute, e.g. size of leaves	Introduce the concept of data handling: - collect and sort data, e.g. How many boys/girls in the class? - sort the data by letting learners stand in a boy/girl row	Collect objects (twigs of different sizes/ lengths) Sort the collected objects (twigs)	Pose a question: 'Are names with six letters the most popular?' Collect data to answer the question using the learners' name cards Sort the name cards according to the number of letters in each name	Collect data: Whose birthdays are in which month? Sort the data according to the relevant birthday month of each learner Collect data: e.g. What is your favourite playdough colour? Select one block representing the colour of his/her choice of playdough for the week Collect data: Which mode of transport do learners use to come to school? Sort the collected data (walk, with parent's car, taxi or bus)
5.2	**Represent sorted collections of objects**	Represent the graph using concrete objects Make a graph representing the data using blocks or shapes Make a pictograph	Draw a graph to display data (twigs) Draw a picture as a record of collected objects	Draw a graph by pasting each name card below the relevant column Make a pictograph	Draw a graph representing the learners' birthdays in each month Use real objects to make a graph, such as blocks to represent the colour of playdough you plan to make, e.g. blue, yellow, green Draw a pictograph representing the learners who walk and come by taxi, car, bus
5.3	**Discuss and report on sorted collections of objects**	Read and interpret data by using playdough to make a representation of the number of boys and girls in the class Answer questions based on own sorting of objects How many big leaves did you draw? Which are the most: the big leaves or the small leaves? How many/more/ less/same as?	Read and interpret graphs using questions Answer questions based on own picture or own sorted objects	Read and interpret data by counting the number cards in each column and coming to a conclusion	Read and interpret graphs using questions to determine which month has the most birthdays According to the choice of the learners, the colour of the playdough for the week will be, for example, yellow Read and interpret graphs (How many walk, come by taxi, bus, etc.?)

5. TŠHOMIŠO YA TSHEDIMOŠO					
	HLOGOTABA	**KOTARA YA 1**	**KOTARA YA 2**	**KOTARA YA 3**	**KOTARA YA 4**
5.1	**Kgoboketšo le tlhaolo ya dilo** Kgoboketša le go hlaola dilo go ya ka sebopego, mohl. bogolo bj matlakala	Ruta/lemoša barutwana ka go kgoboketša le go hlaola: - kgoboketša le go hlaola tshedimošo, mohl. Ke basetsana/ bašemane ba ba kae? - hlaola tshedimošo ka go bea basetsana mothalading o tee le bašemane mothalading wa bona	Kgoboketša dilo (dikalana tša botelele bja go fapana) Hlaola dilo tšeo di kgobokeditšwego (dikalana)	Botšiša potšišo: 'Na maina a maletere a 6 a tlwaelegile?' Go humana karabo kgoboketša tshedimošo dikareteng tša maina Beakanya dikarata tša maina go ya ka palo ya maletere	Kgoboketša tshedimošo: Kgwedi ya matswalo a gago e neng? Kgoboketša tshedimošo go ya ka kgwedi ye maleba ya matswalo a barutwana Kgoboketša tshedimošo: mohl. O rata mmala ofe? Kgetha mebala ka beke go emela mmala wo o kgethilwego Kgoboketša tshedimošo: Le sepela ka eng go tla sekolong? Beakanya/hlopha tshedimošo (sepela, ka koloi, theksi goba pese)
5.2	**Bekanya tshedimošo ya tšeo di kgobokeditšwego**	Šomiša kerafo go bontšha/emela tšeo di kgobokeditšwego Šomiša diploko le dibopego go emela tshedimošo Dira kgoboketšo ya diswantšho	Thala kerafo go bontšha tshedimošo (dikalana) Thala diswantšho go bontšha tšeo di kgobokeditšwego	Thala kerafo gomme o bee leina la karata kholomong ya maleba Dira kgoboketšo ya diswantšho	Thala kerafo ya go emela matšatši a matswalo a barutwana mo kgweding ye nngwe le ye nngwe Šomiša dilo tša nnete go dira kerafo bjalo ka diploko, dikhupu tša go hlatlagana, dibapadišwa tša leago goba diploko tšeo di emelago mebala, mohl. talalerata, sorolwana le talamorogo Thala kgoboketšo ya diswantšho go emela bana bao ba sepelago le go namelago tekesi, koloi, pese
5.3	**Ahlaahla o bege (dira raporoto) ka tšhedimošo yeo e kgobokeditšwego**	Bala le go hlatholla tshedimošo ka go šomiša letsopa la go bapala go dira kemelo ya palo ya bašemane le basetsana ka phapošeng Araba dipotšišo go latela ka fao ba hlaotšego dilo O thadile matlakala a makae? Ke dife tše dintši: matlakala a magolo goba a mannyane? A makae/ntši/ mmalwa/a go lekana?	Bala le go hlatholla dikerafo ka go šomiša dipotšišo Araba dipotšišo go latela diswantšho le dilo tšeo di kgobokeditšwego	Bala le go hlatholla tshedimišo ka go šomiša/bea dikarata tša dinomoro ka kholomong ya maleba	Bala le go hlatholla dikerafo ka go šomiša dipotšišo go laetša gore ke kgwedi efe yeo e nago le matšatši a mantši a matswalo Go ya ka kgetho ya barutwana, mmala wa letsopa la go bapala ka beke e tla ba, go fa mohlala, sorolwana Bala o be o hlatholle kerafo (Ke ba ba kae bao ba sepelago ka maoto, ke ba ba kae bao ba tlago ka theksi, le bao ba namelago pese, bj.bj.?)

Numbers, Operations and Relationships

Understanding number

Children develop a sense of number and counting through their everyday experiences. They use these to begin to make connections between the different meanings of number. They discover that numbers can be used differently in different situations. For example, 'five' can be used:

- to express an amount ('how muchness'): 'I have five sweets.'
- to express the order of things: 'She is the fifth person in the row.'
- as a measure: 'He is five years old.'
- as a label: 'We live at number five.'
- in a calculation: '2 + 3 = 5'

Numbers are ideas or concepts of quantity (how much). Learners begin to understand that 'five' means that there are five of something, and that five can be the fifth position in a row, or 'five' can tell us how many things there are. Numbers communicate specific, detailed information about collections and quantities of objects, events or actions.

Figure 4.2 Different meanings of 'five'

Numbers are abstract concepts. They are not objects themselves. They describe something about other objects. For example, just like the word 'green' can be used to describe the colour of an apple, the number 'six' can be used to describe the number of apples in a collection. If someone asks you to give them a plate you can hand them the physical object, but if someone asks you to give them 'five' you can't pick that up and

Dinomoro, Tirišo le Tswalano

Kwešišo ya dinomoro

Bana ba ithuta dinomoro ka go bala dilo tšeo ba di šomišago goba ba gahlanago natšo maphelong a bona tšatši ka tšatši. Ba šomiša tsebo ye go tswalanya ditlhalošo le dinomoro. Ba utlolotše gore dinomoro di ka dirišwa ka go fapana mabakeng a go fapana. Go fa mohlala, 'hlano' e ka šomišwa:

- go bontšha boleng ('gore ke tše kae'): 'Ke na le malekere a mahlano.'
- go bontšha tatelano ya dilo: 'Ke wa bohlano mothalading.'
- tekanyetšo: 'O na le mengwago ye mehlano.'
- bjalo ka nomoro: 'Tšhupabodulo ya gešo ke 'hlano' seterateng sa Mawasha.'
- go hlakanya: '2 + 3 = 5'

Dinomoro ke dikgopolo tša boleng (ke bokae). Barutwana ba thoma go kwešiša gore 'hlano' e bolela dilo tše hlano, hlano e ka ba wa bohlano mothalading, goba 'hlano' e ka re botša gore dilo ke tše kae. Dinomoro di bontšha palo, tiišetšo, botlalo ka kgoboketšo le boleng bja dilo, ditiragalo goba ditiro.

Seswantšho sa 42 Ditlhalošo tša go fapana tša 'hlano'

Nomoro ga se selo sa go swarega. Efela e hlaloša dilo ka se sengwe. Ga se didirišwa ka botšona. Go fa mohlala, lentšu le 'tala' le šomišwa go hlaloša apola mola 'tshela' e hlaloša palo ya diapola. Ge motho a ka kgopela sebjana o kgona go mo fa efela ge a ka kgopela 'hlano' o ka se e tope wa mo fa. O ka gopola go mofa nomoro '5' yeo e ngwadilwego

hand it to them. You might think of giving them the numeral '5' written on a card or you might give them five sticks, or show five fingers. It is impossible to show the number itself because it is an idea in our heads, so we find ways of showing or representing the number, such as using a collection of objects, a picture or a symbol, such as a numeral or a word.

In practice ...

Help learners build new maths knowledge and concepts based on their everyday experiences:

- Draw on learners' prior knowledge when introducing new maths concepts.
- Use practical situations to model new maths concepts.
- Make links between everyday activities and concepts.
- Plan activities that build on and deepen learners' understanding of a maths concept.

Figure 43 illustrates a simple progression from everyday activities to more complex concepts of number in Grade R. It starts with everyday activities that have links to numbers and initial number concepts and progresses to more complex concepts of number.

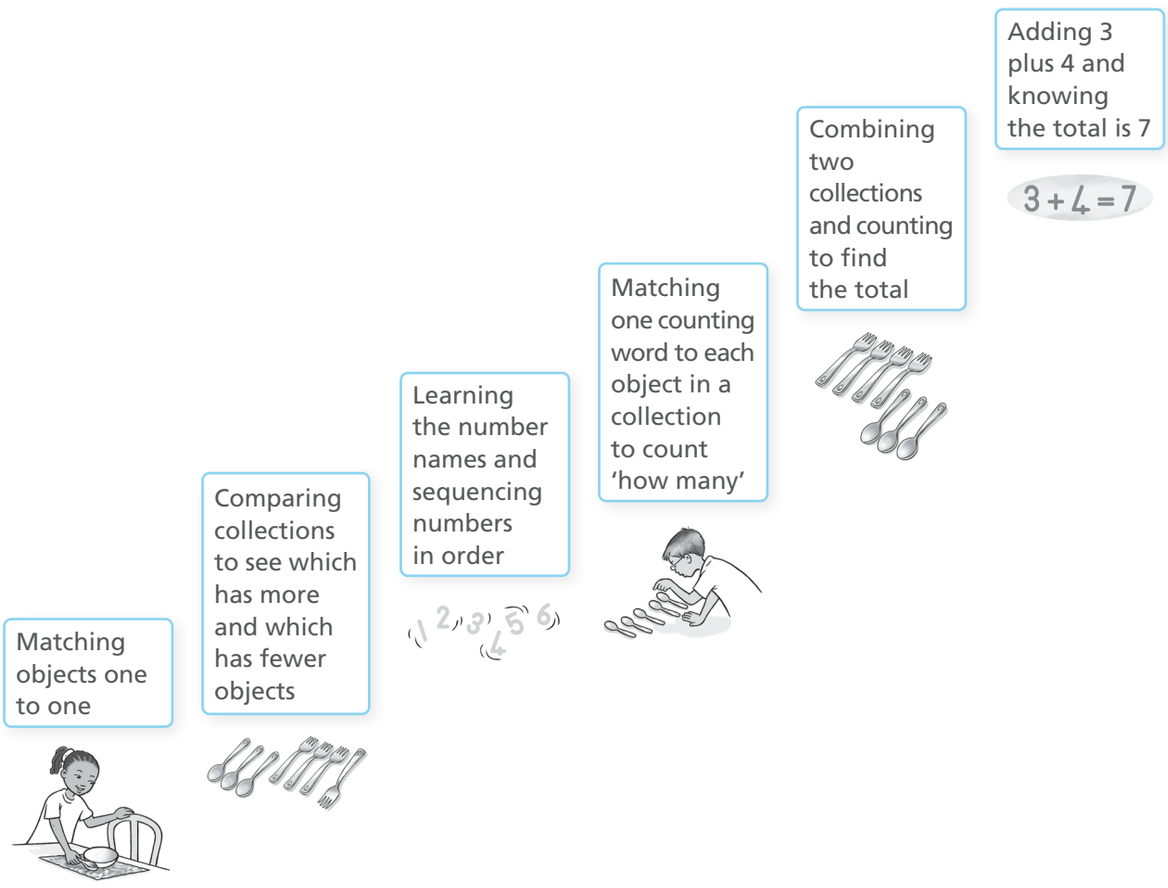


Figure 43 Progression

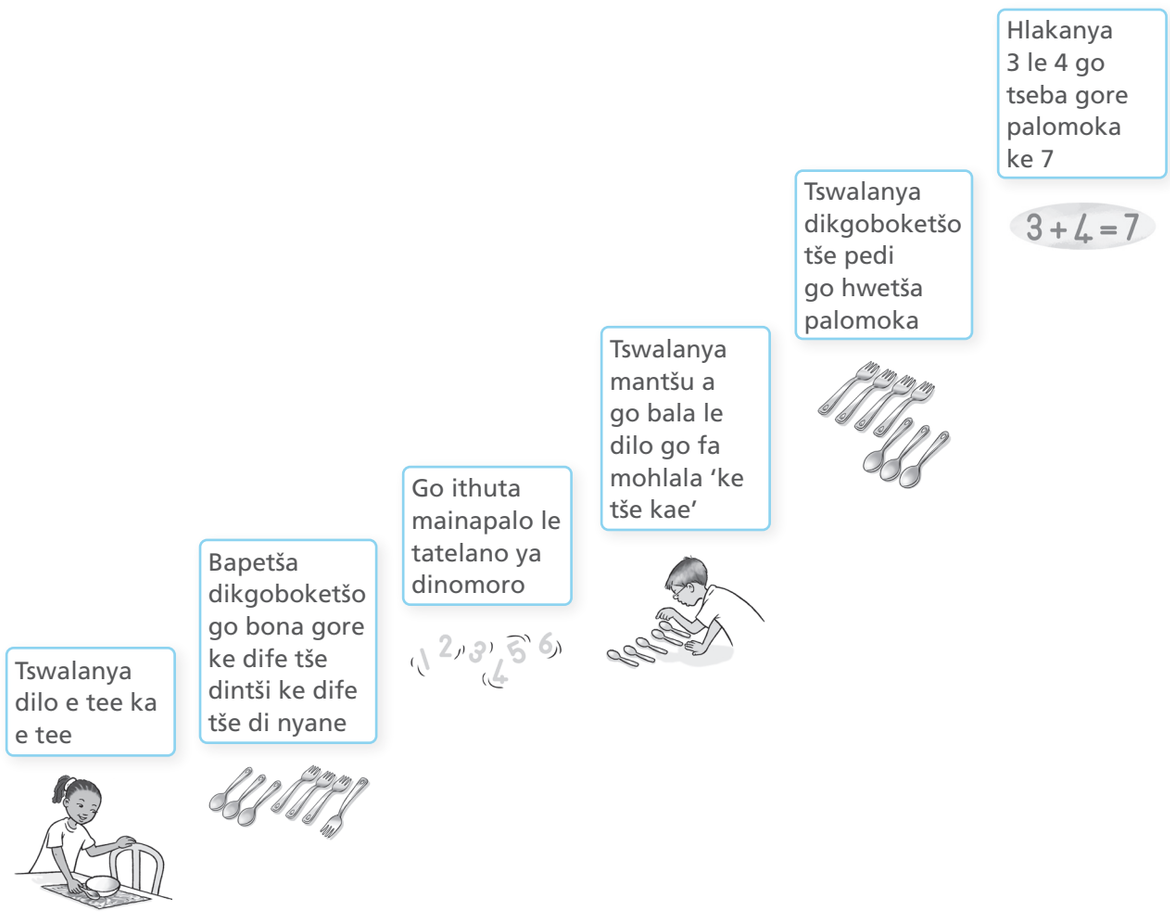
karateng goba go mo fa dipatlana tše hlano goba o mo laetše menwana ye mehlano. Go boima go bontšha hlano ka ge e le kgopolo ka lebaka leo re bontša nomoro ka dilo bjalo ka diswantšho, maswao (dikapalo) goba mantšu (paloina).

Go ikatiša ...

Thuša barutwana go aga bokgoni bja go tseba dipalo ka go ithuta ka dilo tša ka mehla:

- Šomiša tsebo ya bona ya peleng go ba ruta mareo a mafsa a dipalo.
- Šomiša dilo tšeo ba di tsebago go ba bontšha mareo a mafsa a dipalo.
- Tswalanya mešomo ya ka mehla le mareo.
- Beakanya mešomo yeo e tlago thuša go tšwetša pele kwešišo ya barutwana ya dipalo.

Seswantšho sa 43 se laetša ntšhetšopele go tloga go mešomo ya ka mehla go ya go ithuta mareo a dipalo Mphatong wa R. Se thoma ka mešomo ya ka mehla yeo e tswalanago le dinomoro gomme ya tšweletša mareo ao a tšweletšago kgolo ya dinomoro.



Seswantšho sa 43 Hlatlamano

Representing number

During Grade R, learners use symbols to **represent** words, images and ideas. Children first learn to represent ideas or actions through fantasy play, for example, a learner's arms are the aeroplane wings as she zooms around the room, or a learner might use a plastic lid as a steering wheel to drive a car.

GLOSSARY

represent
to use objects, symbols or actions to stand for an idea or concept

Learners begin to represent numbers using their fingers and then gradually start to use other methods, such as objects, drawings, pictures or symbols. Learners progress:

- from using actual objects to represent numbers, e.g. lemons, sweets, pencils, leaves
- to using pictures or drawings to represent the objects, e.g. a drawing of a lemon, person, car
- to using counters to represent the objects or pictures, e.g. plastic discs to show the number of lemons
- to using marks to represent the physical objects and pictures, e.g. circles, dots, tally marks
- to using written number symbols and number words, e.g. '2' or 'two'.

Here are some different ways of representing 'five'.

Figure 44 Different representations of 'five'

Different kinds of numbers

There are different kinds of number in the number system. **In Grade R we focus only on understanding and using whole numbers (counting numbers).**

In higher grades, learners will learn that:

- **integers** include whole numbers and negative numbers
- **rational numbers** include whole numbers, negative numbers, decimals and fractions.

Kemedi ya palo

Mphatong wa R barutwana ba šomiša dika/maswao go **emela** mantšu, diswantšho le dikgopolo. Bana ba ithuta go bontšha dikgopolo goba ditiro ka go raloka, go fa mohlala, ngwana o šomiša matsogo go bontšha lephego la sefofane goba ngwana a ka šomiša sekhurumelo bjalo ka leotwana la go otlela.

TLHALOŠANTŠU

emela
go šomiša dilo, leswao goba tiro go emela kgopolo

Barutwana ba ithuta go šomiša menwana ya bona go emela dinomoro gomme ba thoma go šomiša mokgwa woo ka dilo tše dingwe bjalo ka didirišwa, dithalwa, diswantšho goba maswao. Barutwana ba thoma go:

- šomiša dilo go ema legatong la dinomoro, mohl. dinamune, malekere, pensele, matlakala
- šomiša diswantšho go ema legatong la dilo, mohl. seswantšho sa namune, motho, koloi
- šomiša dibaledi go emela dilo tšeo di lego diswantšhong, mohl. dikhurumelo tša mapotlelo go bontšha palo ya dinamune
- šomiša leswao go emela selo sa nnete goba seswantšho, mohl. sediko, marontho, lekanyetša
- šomiša palontšu le sekapalo, mohl. '2' goba 'pedi'.

Mekgwa ye mengwe ya go bontšha/emela 'hlano'.

Seswantšho sa 44 Mekgwa ya go bontšha 'hlano'

Dinomoro tša go fapana

Go na le mehuta ya go fapana ya dinomoro kgoboketšong ya dinomoro. **Ka Mphatong wa R re lebelela le le go šomiša feela dipalotlalo (dinomoro tša go balwa).**

Mephatong ya godingwana barutwana ba tla ithuta:

- **palokganetšo** go akaretša dipalotlalo le dipalokganetšo
- **dinomorokgopolo** di akaretša dipalotlalo, palokganetšo, tesimale le dipalophatlo.

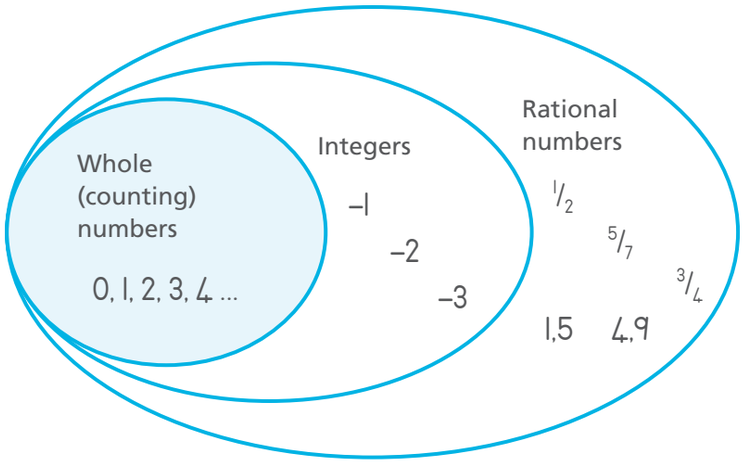


Figure 4.5 In Grade R the focus is on whole numbers.

Subitising

Subitising involves immediately recognising, without counting, the number of items in small collections. Subitising is an early skill that exists before learning number names and symbols or learning to count. Subitising forms a strong foundation for counting collections of objects and for early calculation.

GLOSSARY

subitising
the cognitive ability to immediately recognise the total number of objects in a collection without counting

Perceptual subitising

Perceptual subitising is the ability to immediately perceive the number of objects in a small collection. Young children are able to perceive or recognise the difference between a number of objects in a collection, without counting, and can say which is more or which is fewer without knowing number names or symbols. Often, they can use their fingers to match and show the same number of objects. Gradually they learn to match number names to the collection and will be able to say, without counting, that there are one, three, two, five objects in a collection. This form of subitising is only possible with a small number of objects and most children and adults can accurately do this up to five.

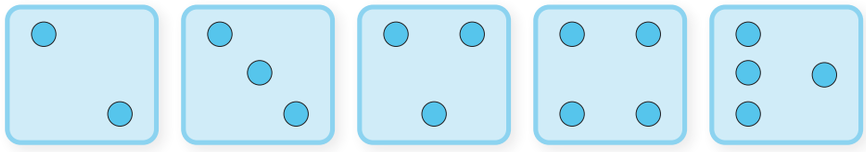
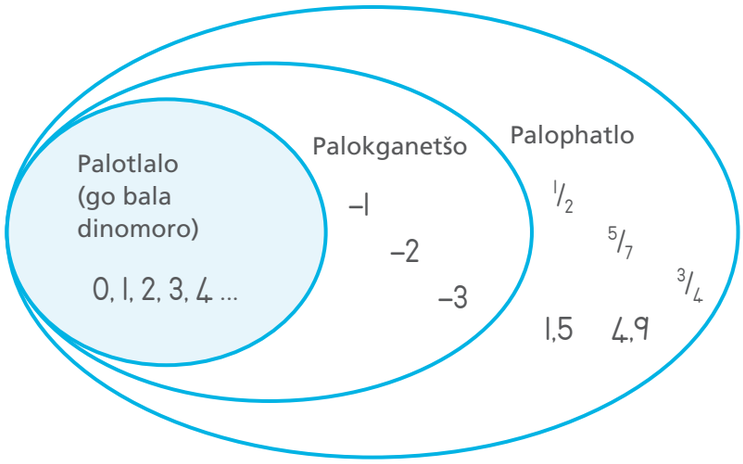


Figure 4.6 Dot arrangements for two, three and four

Conceptual subitising

In Grade R the learners' ability to recognise 'how many' objects there are in a collection increases. It can extend to amounts larger than five by making use of number images, such as the arrangement of the dots on dice, dominoes and ten-frames.



Seswantšho sa 4.5 Mphatong wa R go lebelelwa palotlalo.

Temogo

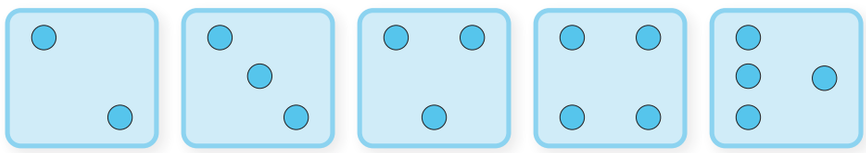
Temogo e akaretša go lemoga ntle le go bala palo ya dilo tšeo di kgobokeditšwego. Temogo ke bokgoni bjo barutwana ba nago le bjona pele ba ka ithuta maina a dinomoro le maswao. Temogo ke motheo wa go bala dilo tšeo di kgobokeditšwego le go di hlakantša.

TLHALOŠANTŠU

temogo
ke bokgoni bja go lemoga palo ya dilo ntle le go di bala

Temogopalo

Kgopolo ya temogopalo ke go kgona go nagana ka palo/nomoro ye nnyane. Bana ba kgona go lemoga phapano magareng ga palo ya dilo ntle le go di bala gomme ba kgona go lemoga gore 'ke difetše ntši' le go re ke difetše nnyane' ntle le go tseba lentšupalo goba sekapalo. Gantši ba ka šomiša menwana go swantšha goba go bontšha palo ya dilo. Ga nnyane ga nnyane ba ithuta go swantšha mainapalo le nomoro, ntle le go di bala ba ka bolela gore go na le e tee, tše pedi, tharo, hlano, bj.bj. Temogopalo ya mohuta wo e thuša bana le batho ba bagolo go lemoga palo ya dilo tše mmalwa, bana le batho ba bagolo ba bantši ba kgona go dira se ntle le tšhitišo go fihla ka hlano.



Seswantšho sa 4.6 Peakanyo ya marontho ka bobedi, boraro le bone

Kgopolo ya temogopalo

Mphatong wa R, barutwana ba kgona go lemoga gore dilo 'ke tše kae'. Temogo ya palo ya dilo e kgona go feta go bona dilo tša go feta tše hlano, se se ka dirwa ka go šomiša dinomoro diswantšhong tšeo di lego letaeseng, ditominong le foreimeng/mohlamo wa lesome.

In the examples below, by using conceptual subitising, learners can immediately recognise that these cards each show seven objects.

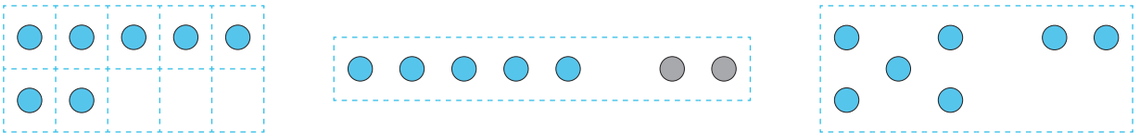


Figure 47 Dot arrangements for seven

This extended form of subitising is called conceptual subitising. It is based on part–whole knowledge and enables learners to quickly identify numbers larger than five.

In practice ...

Learners enjoy playing games that involve quickly showing a small number of objects before hiding them, then asking how many there were. Matching and counting games will consolidate subitising, for example, recognising a number of objects without counting. This will help the learners with memorising number combinations to ten and early calculations (addition and subtraction).

Dot cards can be used to:

- present different number arrangements from one to five
- support the development of recognition of small numbers
- associate number names with small collections
- match counters to the dots.

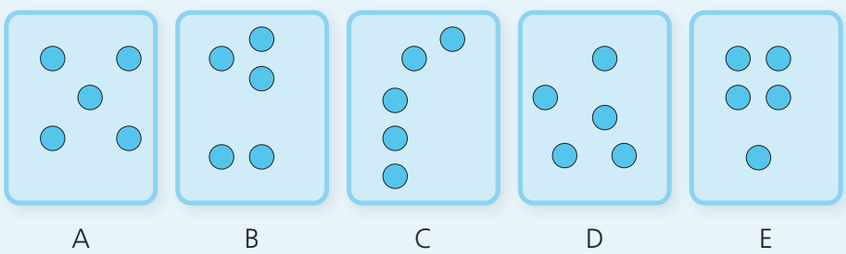


Figure 48 Dot cards

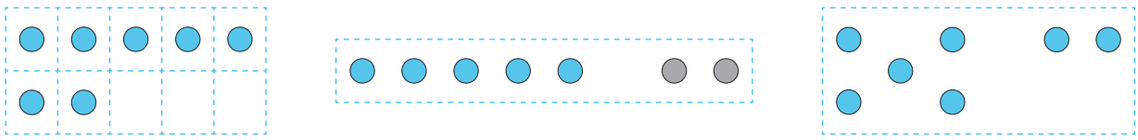
Activities such as dominoes and dice games provide fun opportunities to practise subitising skills.

Counting

Counting is a complex skill that needs lots of practice. Learners develop it as they practise counting real objects. Often they begin by imitating the counting of older learners and adults.

There are two activities that involve counting. The first is oral or rote counting that involves memorising the names and order of the counting numbers, often in a rhyme or song. The second is counting objects one by one to find out 'how many'.

Mohlala wo o lego ka fase o bontšha gore barutwana ba kgona go lemoga/bona gore dilo ke tše šupa ntle le go di bala.



Seswantšho sa 47 Marontho a beakantšwe ka bošupa

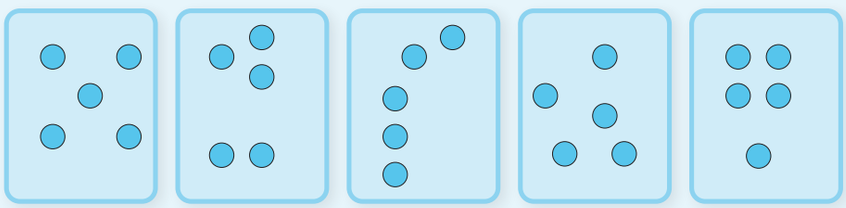
Mohlala wo wa temogopalo o bitšwa temogopalokgopolo. O theilwe godimo ga tsebo ya motheo gomme e thuša barutwana go lemoga dinomoro tša go feta tše hlano.

Go ikatiša ...

Barutwana ba thabela dipapadi tša go ba bontšha dilo tše mmalwa ka palo. Ba ka bontšhwa palo ya dilo morago tše dingwe tša fihlwa gomme ba swanelwa ke go gopola gore ke dilo tše kae. Papadi ya go tswalanya le go bala e ba thuša go gopola dinomoro, go fa mohlala, go gopola palo ya dilo ntle le go di bala. Se se thuša barutwana go gopola go hlakantšha dinomoro tšeo ba ithutilego tšona peleng (go hlakantšha le go ntšha).

Dikarata tša marontho di ka šomišwa go:

- hlagiša mehuta ya peakanyo ya dinomoro go tloga go tee go iša go tše hlano
- thekga kgolo ya go lemoga dinomoro tše di nnyane
- tswalanya mainapalo le dilo tše mmalwa ka palo
- tswalanya dibaledi le marontho.



Seswantšho sa 48 Dikarata tša marontho

Dipapadi tša go swana le ditomino le mataese di thuša go ikatiša ka go gopola dipalo (palokgopolo).

Go bala

Go bala ke bokgoni bjo bo nyakago boikatišo. Barutwana ba ithuta ka go bala dilo tša go fapana. Ba thoma go ithuta ka go ekiša barutwana ba bagolo go bona goba batho ba bagolo.

Go na le mekgwa e mebedi ya go bala. Wa mathomo ke wa go balela godimo moo barutwana ba ithutago go gopola maina le tatelano ya dinomoro, se se ka dirwa ka mokgwa wa direto goba dikoša. Wa bobedi ke go bala dilo ka e tee e tee go humana gore 'ke tše kae'.

Oral counting

In Grade R, learners learn the correct order of number names and repeat the sequence daily, counting out loud. This kind of **oral counting** is also called **rote** or **acoustic counting**. The purpose of counting out loud is to help learners understand that when we count, there is a set order for the number names, beginning at one, and then following with two, three, four. Initially, learners do not fully understand the meaning of the number names and might skip numbers in a counting sequence.

Reciting a rhyme or series of numbers orally means repeating the numbers from memory. Even when learners count in steps of two, five and ten they are using their knowledge of this number order. Learning number names and repeating them in the correct order does not necessarily mean that learners can count. This is different from counting to find out 'how many'.

GLOSSARY

oral counting/ rote counting/ acoustic counting
counting out loud, saying the numbers in the correct order

rational counting/ resultative counting
counting objects to find out 'how many'

Counting objects

Counting objects is also called **rational** or **resultative counting**. This means that objects or events are matched with a number name. To count 'how many', learners need to realise that each object in a collection gets a number name ('one, two, three, four …') and that you count each object only once.

With plenty of hands-on activities and guidance from the teacher, learners begin to understand and apply the following counting principles:

1. **One-to-one correspondence principle:** Matching one, and only one, counting word to each object in the collection being counted. Initially learners might count the same object twice, skip an object or forget which objects have been counted. It is useful for learners to touch and move objects as they count.
2. **Stable order principle:** Number names are always arranged in the same fixed order, e.g. one is followed by two, two is followed by three, three is followed by four, and so on.
3. **Cardinal principle:** The last number name said when counting a collection, represents the total number in the collection.
4. **Abstraction principle:** Learners understand that even if groups with the same number of objects look very different (e.g. five grapes, five people, five houses) they have the same numerosity, i.e. 'fiveness'. They realise that counting can be applied to objects, pictures, colours, shapes, or even actions or sounds.
5. **Order-irrelevance principle:** The order of counting the objects in a collection does not matter. Learners need to understand that however we arrange the objects, the total number of objects in the collection remains the same.

Go balela godimo

Ka Mphatong wa R, barutwana ba ithuta mainapalo ka go a bolela le go balela godimo maina le tetelano ya ona. Mohuta woo wa **go balela godimo** o bitšwa **go bala ka modumo**. Mohola wa go balela godimo ke go ruta barutwana go kwešiša tatelano ya dinomoro, ba tsebe gore ge o ka thoma ka tee, go latela pedi, tharo le nne. Barutwana ge ba thoma ba ka no se kwešiše tatelano gomme ba hlakanya dinomoro efela ge nako e tšwelapele ba tla kwešiša.

Go reta/bolela nomoro go bolela/bontšha go gopola dinomoro tšeo di le go kgopolong. Le ge barutwana ba bala ka go tshela pedi, nne, seswai ba šomiša tsebo dira tatelano. Go tseba mainapalo le go bolela tatelano ya dinomoro go bolela gore barutwana ba tseba go hlakantšha le go ntšha. Go tseba go re 'ke tše kae' ke bokgoni bjo fapanego.

TLHALOŠANTŠU

go balela godimo/ go bala ka modumo
go balela godimo go bontšha tetelano ya maleba ya dinomoro

go gopola
go bala dilo wa tseba go re 'ke tše kae'

Go bala dilo

Go bala dilo go bitšwa **go gopola**. Se se bolela gore mainapalo a tswalanywa le dilo goba ditiragalo. Go bala go re 'ke tše kae' barutwana ba swanetše go tseba go bala dilo gomme ba gopole leinapalo ('tee, pedi, tharo, nne, …') ba tsebe le gore selo se balwa ga tee.

Ka thušo ya morutiši, barutwana ba tla kgona go kwešiša tše di latelago ka go bala dinomoro:

1. **Setheo sa go tswalanya tee-ka-tee:** Tswalanya tee le tee, bala mantšu a se sengwe le se sengwe seo se badilwego. Ge ba thoma, barutwana ba tla bala dilo tše dingwe ga bedi, ba tshela tše dingwe goba ba lebala go re ba badile tše dife. Go bohlokwa gore barutwana ba sware le go tloša dilo tšeo ba di badilego.
2. **Setheo sa tatelano:** Mainapalo a dula ka tatelano ye e rilego gomme ga a fetoge, mohl. tee e latela ke pedi, pedi e latelwa ke tharo, tharo e latelwa ke nne, bj.bj.
3. **Setheo sa palokgoboko:** Palo/nomoro ya mafelelo yeo e bolelwago ge go balwa kgoboketšo ya dilo gomme yona ya bolela palomoka ya dilo tšeo.
4. **Setheo sa go nagana/gopola:** Barutwana ba a kwešiša le go lemoga gore kgoboketšo e ka dirwa ka dilo tša go se swane (mohl. diterebe tše hlano, batho ba ba hlano, dintlo tše hlano) di na le palo ya go swana, mohl. 'bohlano'. Ba lemoga gore go dilo tša go fapana tšeo di kago balwa, mohlala diswantšho, mebala, dibopego, ditiragalo le medumo.
5. **Setheo sa go hloka tatelano:** Go re dilo di latelana bjang ga go bohlokwa. Barutwana ba swanetše go tseba go re go sa šetšwe gore dilo di dutše bjang, mafelelong palomoka ya tšona e ka se fetoge.

Figure 49 Example of the abstraction principle

Once learners have understood and can apply all five of these counting principles, we can confidently say that they can count.

In practice ...

With practice, learners understand that counting can be used to compare collections of objects. Once learners know the counting sequence or order of the counting numbers they:

- begin to understand that each number in the counting sequence is one bigger than the number before and one smaller than the next number.
- can mentally compare numbers and see that two is one more than one, and that three is one more than two.
- realise that numbers grow by one each time and that any number in the counting sequence is exactly one more than the previous number.

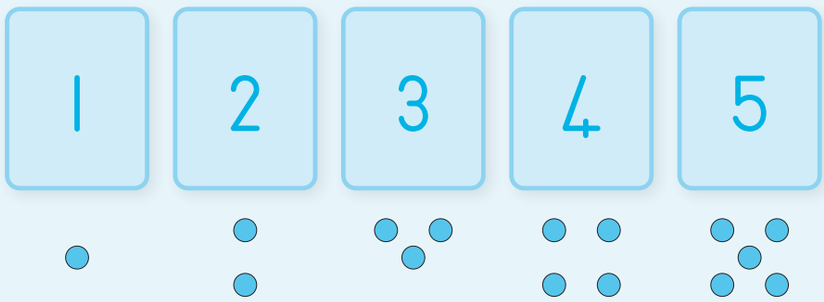


Figure 50 Counters represent number quantities in order.

Estimation

Although counting is about finding the exact number of objects in a collection, learners also need to develop estimation skills so that they can say 'about' how many objects there are in a collection. They need to be able to use terms such as 'a lot', 'few', 'more', 'too many' or 'the same as'. Estimating is about learners using their understanding of number to make sensible and accurate guesses about quantities and amounts while realising that an estimate does not need to be exactly right. Learners are often reluctant to make a guess in case it is incorrect.

Seswantšho sa 49 Mohlala wa setheo sa kgopolo

Ge barutwana ba kwešiša ebile ba kgona go šomiša ditheo tša go bala, ke gona fao re tlago ipetha sefega ra re ba kgona go bala.

Go ikatiša ...

Ka go ikatiša, barutwana ba kwešiša gore palo ya dilo e ruta go bapetša dilo. Ge barutwana ba tseba mokgwa wa go bala le tatelano ya dinomoro ba:

- thoma go lemoga le go kwešiša gore go ya ka tatelano ya dinomoro ge go balwa go išwa godimo nomoro ya ka tlase ke ye nnyane.
- ba kgona go lemoga le go tseba gore pedi e feta tee gomme tharo e feta pedi.
- ba lemoga gore dinomoro di a gola/di golela godimo ka e tee le go re tatelano ya dinomoro e bolela go re ke e tee go feta ya morago.

1	2	3	4	5
●	● ●	● ●	● ●	● ●
			● ●	●

Seswantšho sa 50 Dibaledi di emela tatelano ya palo/bontši bja dinomoro.

Akanya

Go bala dilo go bolela go hwetša palo/bontši bja nnete ba dilo, barutwana le bona ba swanetše go ithuta go akanya gore ba kgone go tseba gore 'ke dilo tše kae'. Ba swanetše go šomiša mantšu a go swana le 'tše ntši', 'tše mmalwa', 'ntši' le 'tša go lekana'. Go lekanya/tekanyetšo e thuša barutwana go kwešiša dinomoro le go dira dikakanyo tša gore dilo ke tše di kaakang le go lemoga gore tekanyatšo ga e bolela kgonthe. Hlokomela gore barutwana ga ba rate go fa dikakanyo ka gobane ba tšhaba go phoša goba go dira phošo.

In practice ...

Although learners may not yet be able to count a number of objects precisely, they can find an answer by estimation.

- Based on the visual image, learners can see that there are more objects or items in a picture. They can say which has more or which has fewer.
- Learners can find the answer by using one-to-one matching of the objects from two collections to compare which collection has the most and which has the least.
- Learners can compare the number of items in two pictures by drawing a line around the same number of items in each picture.
- Learners can also use their hands to cover a number of items, for example, four ice creams in each picture. It would be clear that there are more ice creams uncovered in the first picture.

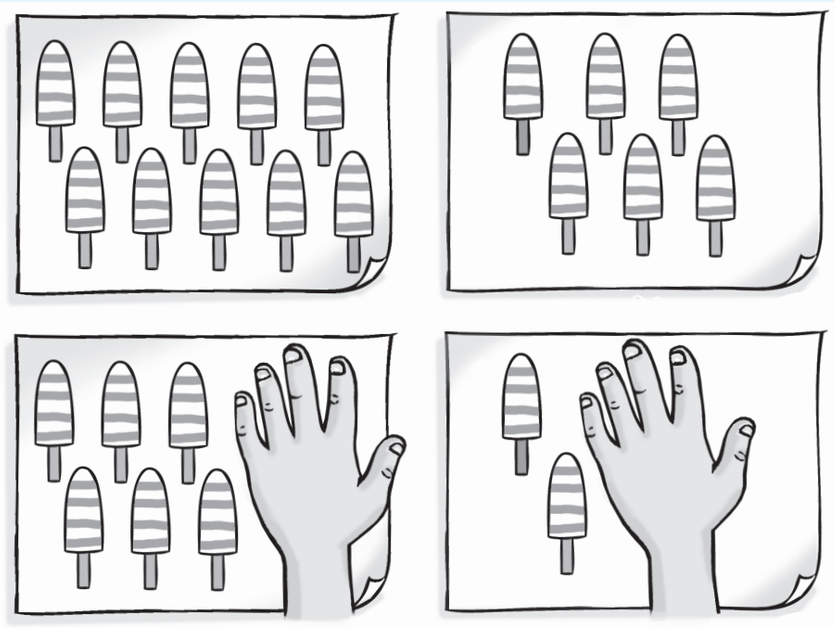


Figure 51 Estimating based on the visual image that is seen

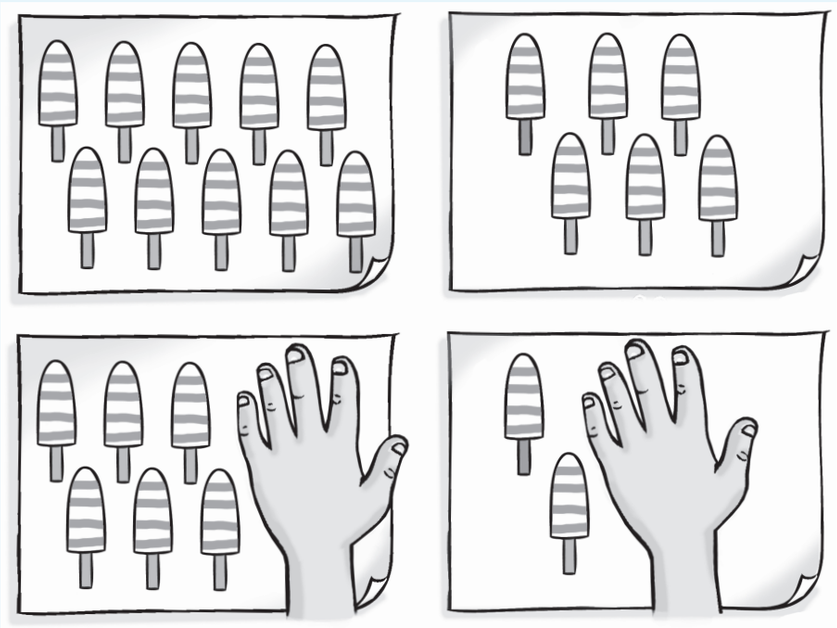
Ordinal numbers

Ordinal numbers are used to describe the place or position of a person or object, for example, in a line or row. Learners understand that if they run a race they don't come 'three' they come 'third'. In the same way, they know that they don't stand 'one' in line but rather 'first'.

Go ikatiša ...

Le ge barutwana ba ka be ba sa tsebe go bala gabotse, efela ba kgona go hwetša palomoka ya maleba ka go akanya.

- Ka go lebelela barutwana ba kgona go bona gore ke dife tše dintši seswantšhong. Ba ka bolela go re ke dife tše dintši ke dife tše di nyane.
- Barutwana ba ka hwetša dikarabo ka go tswalanya e tee ka e tee ya dilo go lemoga gore ke dilo dife tše dintši ebile ke dife tše mmalwa.
- Barutwana ba ka bapetša palo ya dilo diswantšhong tše pedi ka go thala mothaladi go dikologa dilo tša palo/nomoro ya go swana seswantšhong se sengwe le se sengwe.
- Barutwana ba ka šomiša matsogo a bona go fihla palo ya dilo, go fa mohlala, malekere a mane seswantšhong. Go tla bonala go re ke malekere a makae ao a thibilwego seswantšhong sa mathomo.



Seswantšho sa 51 Go akanya seo se bonwago

Palokgoboko

Palokgoboko e šomišwa sebakeng sa go hlaloša sebaka goba kemo ya motho goba selo, mohl. mothalading. Barutwana ba kwešiša gore ge ba kitima ba fetša ‘borarong’ e sego ‘tharo’. Ka tsela yeo ba kwešišago gore o ba wa ‘mathomo’ e se go ‘tee’ mothalading.

Figure 52 First, second and third positions

Calculating

A good understanding of number and counting is important for learning how to calculate. Learners first need to understand the relationship between numbers: comparison, ordering and partitioning numbers (breaking down and building up) in order to learn number operations, such as addition, subtraction, multiplication and division.

Activities and experiences that involve breaking down and building up numbers, adding to and comparing collections are the beginning of the concept of combining (addition) and separating (subtraction). Grade R learners are also exposed to addition and subtraction during their everyday games and activities, e.g. when they play 'shop' together or have to share toys. For subtraction, learners need to take part in practical activities that involve 'taking away', in other words, finding how many are left in a collection of objects when some have been removed. Initially learners will use counting strategies to solve problems involving addition or subtraction, e.g. counting all the objects in two collections to reach a total amount when the two collections are combined, or counting how many coins are left when some have been given away.

Multiplication, division and fractions are not formally taught in Grade R, but learners use these concepts when they solve problems that involve making groups of objects and when they share something equally. Activities that involve repeated addition and repeated subtraction lay the foundation for the concepts of multiplication and division. These activities also help to establish relationships between addition and multiplication, and subtraction and division, which need to be understood later on at school.

In practice ...

Present learners with problems that explore making equal groups and equal sharing, for example:

- Ask three learners to each take two counters. Together count the total number of counters, e.g. two and two is four and two is six (repeated addition).

Seswantšho sa 52 Maemo a pele, a bobedi le a boraro

Go hlakantša

Go kwešiša dinomoro le go hlakanya go bohlokwa ge barutwana ba ithuta go hlakantša. Barutwana ba swanetše go kwešiša tswalano ya dinomoro: go bapetša, go beakanya le tatelano (go di robaganya le go di aga) gore ba tle ba kgone go ithuta go šoma ka dinomoro, bjalo ka go hlakantša, go ntša, go atiša le go arola.

Mešomo le maitemogelo a go roba le go aga dinomoro ka go di hlakantša le go di aga. Go di aga le go di bapetša ke motheo wa go kwešiša (go hlakanya) le go kgaoganya (go ntša). Barutwana ba Mphato wa R ba swanetše go hlakantša le go ntša ka mehla ka nako ya dipapadi tša ka phapošeng goba ka ntle ga phapoši, mohl. ge ba 'raloka go reka le go rekiša' goba ge ba abelana dipapadišane/dibapadišwa. Go ntša, barutwana ba swanetše go kgatha tema mešomong yeo e ba rutago 'go ntša'. Go fa mohlala, ba swanetše go tseba gore go šetše tše kae, ke tše kae tšeo di tlošitšwego. Ge ba thoma ba tla šomiša mekgwa ya go bala go rarolla dipalo tša go hlakantša le go ntša, mohl. go bala dilo ka moka gomme ba humana palomoka ya tšona ge di hlakane, goba go bala go re go šetše tše kae morago ga go fa yo mongwe tše dingwe.

Ka Mphatong wa R barutwana ga ba ithute ka go atiša, go arola le palophatlo, efela barutwana ba tla di šomiša ge ba rarolla dipalo tša go dira dihlopha tša dilo le ge ba arolelana dilo ka go lekana. Mešomo ya go hlakantša le go ntša leboelela e aga motheo wa go atiša le go arola. Mešomo e thuša go aga tswalano magareng ga go hlakantša le go ntša le go atiša le go arola, e lego bokgoni bjo bo nyakegago ge ba tšwelapele ka dithuto sekolong.

Go ikatiša ...

Efa barutwana dipalo moo ba swanetšego go dira dihlopha tša dilo tša go lekana gomme ba arolelane dilo tšeo ka go lekana, go fa mohlala:

- Kgopela barutwana ba bararo go tšea dibaledi tše pedi. Ka moka ga bona ba bale palomoka ya dibaledi, mohl. pedi le pedi ke nne le pedi ke tshela (ba hlakantšhe leboelela).

- Place six counters on the mat. Remove two at a time as you say, 'six take away two is four, take away two is two and take away two leaves nothing' (repeated subtraction).
- Give learners cut-out circles. Ask them to make equal groups on each circle using counters, e.g. two in each circle.
- Ask learners to share objects equally between them, e.g. share 15 counters between three learners.
- Ask learners to share objects where the remainder must be shared, e.g. share two apples equally between three learners.

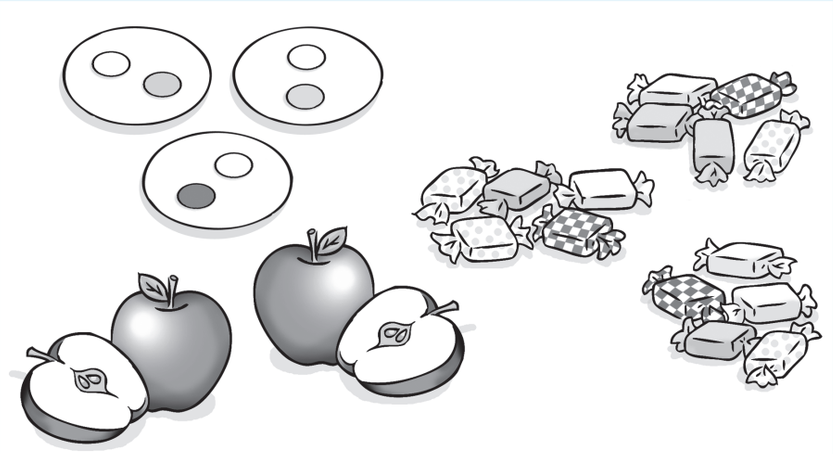
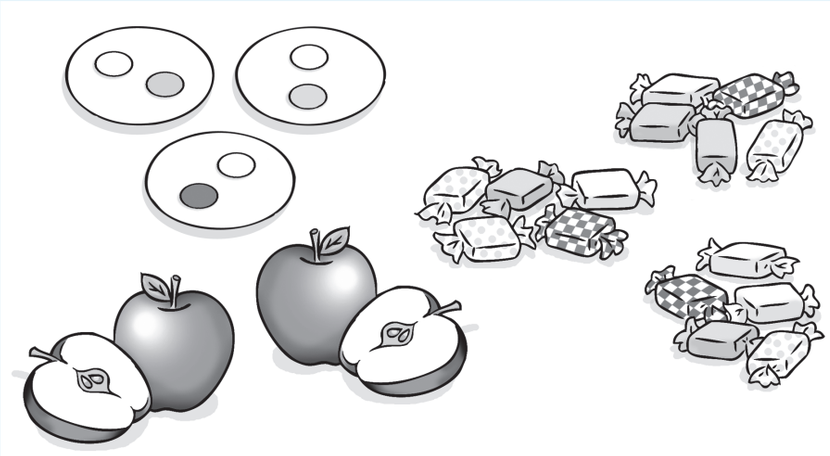


Figure 53 Using objects for calculations

Questions to ask for Numbers, Operations and Relationships

- Can you arrange these in a different way?
- How many are there?
- How many can you count?
- Who has more/fewer?
- What number comes before …? What number comes after …? What number is between … and …?
- How many more are in this group?
- If we share these equally between us, how many will we each have?
- If I cover some of these, how many are hidden?
- What number is this? (showing a number card or written numeral)
- Can you put the number cards in order?
- Who is standing first, second, …?
- If you have two of these and I give you two more, how many will you have?
- If I have three of these and I give you one, how many will I have?

- Bea dibaledi tše tshela fase mmeteng. Tloša tše pedi ka nako e tee o bolela, 'tše tshela re ntšha tše pedi go šala tše nne, ntšha tše pedi gape go šala tše pedi, ntšha tše pedi gape go šala lefeela' (ba ntšha leboelela).
- Efa barutwana didiko tšeo di segilwego/setilwego. Ba kgopele go dira dihlopha tša go lekana ka dibaledi, mohl. dibaledi tše pedi sedikong se sengwe le se sengwe.
- Kgopela barutwana go abelana dilo ka go lekana, mohl. arolelana dibaledi tše 15 magareng ga barutwana ba bararo.
- Kgopela barutwaba go abelana dilo tša go šala le tšona ba di arole, mohl. aroganya apola tše pedi magareng ga barutwana ba bararo.



Seswantšho sa 53 Šomiša dilo go hlakantša

Dipotšišo ka Dinomoro, Tirišo le Tswalano

- O ka beakanya dilo tše ka mokgwa wo mongwe?
- Ke tše kae?
- O kgona go bala tše kae?
- Ke mang a nago le tše ntši/mmalwa?
- Ke nomoro efe yeo e tlago pele ga …? Ke nomoro efe yeo e tlago ka morago ga …? Ke nomoro efe yeo e tlago magareng ga … le …?
- Ke tše kae sehlopheng se?
- Ge re ka abelana, re tla hwetša tše kae?
- Ge nka tswalela tše dingwe tša tše, ke tše kae tšeo ke di fihlilego?
- Ke nomoro mang ye? (bontšha karata ya dinomoro goba palo yeo e ngwadilwego)
- O ka beakanaya dikarata tše tša dinomoro ka tatelano?
- Go eme mang pele, bobeding, …?
- Ge o na le tše pedi ka go fa tše dingwe tše pedi, o tlo ba le tše kae?
- Ge o e na le tše tharo ka go fa e tee, o tlo ba le tše kae?

Vocabulary for Numbers, Operations and Relationships

Count and recognise numbers

- match, sort, compare
- number
- one, two, three … twenty and beyond
- none, nothing, empty, nought, zero
- how many …?
- count (up) to
- count on (from, to)
- count back (from, to)
- count in ones, twos … tens …
- more, many, few, fewer
- fewer than, greater than, most, least
- too many, too few, enough, not enough
- every other
- group, collection
- nearly, close to, about the same as
- how many left over, remaining
- just over, just under

Compare and order numbers

- match, sort, compare, order
- the same number as, as many as
- one more, two more, …
- one less, two less, …
- in front of, behind, next, next to, between
- first, second, third … tenth
- last, before, after

Of **two** objects/amounts: greater, more, larger, bigger, less, fewer, smaller

Of **three** or more objects/amounts: greatest, most, biggest, largest, least, fewest, smallest

Operations with numbers

Addition and subtraction

- match, compare
- add, more, and
- together, altogether
- double/half
- one more, two more, …
- how many more to make …?
- how many more is … than …?
- take away, subtract
- one less, two less, …
- how many are left/left over?
- difference between

Tlotlontšu ya Dinomoro, Tirišo le Tswalano

Go bala le go lemoga dinomoro

- tswalanya, hlaola, swantšha
- nomoro
- tee, pedi, tharo … masomepedi le go fetiša
- lefeela, ga go selo
- ke tše kae …?
- bala go fihla ka
- balela pele (go tloga go, go fihla ka)
- balela morago (go tloga go, go fihla ka)
- bala ka botee, bobedi … masome …
- ntši, ntšintši, nnyane, nnyanennyane
- tše nnyane go, go feta, ntši, mmalwa
- ntši, mmalwa, tša go lekana, tša go se lekane
- ye nngwe le ye nngwe
- sehlopha, kgoboketšo
- kgaufsi, kgaufsi le, go swana le
- go šetše tše kae
- ka godimo, ka tlase

Bapetša le go latelanya dinomoro

- bapetša, hlaola, tswalanya, latelanya
- nomoro ya go swana le, tša go swana
- e tee gape, tše pedi gape, …
- e ka tlase, tše pedi ka tlase, …
- ka pele ga, ka morago, kgaufsi, kgaufsi le, magareng
- pele, bobedi, boraro … bolesome
- bofelo, pele, ka morago

Kgoboko ya dilo tše **pedi**: kgolo go, ntši, kgolo, kgolwane, mmalwa, mmalwa go, nnyane

Kgoboko ya dilo tše **tharo** goba go feta: kgolo, ntši, kgolokgolo, nnyane, mmalwa, nnyanennyane

Tirišo ya dinomoro

Go hlakantšha le go ntšha

- bapetša, swantšha
- hlakanya, ntši, le
- mmogo, ka moka
- gabedi/halofo/seripa
- e tee gape, tše pedi gape, …
- tše kae gape go dira …?
- tše kae gape … go feta …?
- tloša, ntšha
- e tee ka tlase, tše pedi ka tlase, …
- go šetše tše kae/tlogetšwe?
- phapano magareng

Multiplication and division

- bundles, groups of two, three, …
- share fairly/equally
- share, share between/among
- share one/more than one at a time
- is the same as, different from
- how many left over, remaining

Equivalence

- match, compare
- exactly the same
- same as, different from
- makes
- equal to
- equal groups

Estimate

- match, compare
- guess how many; estimate
- nearly, close to
- about the same
- just under, just over
- too many, too few, enough, not enough

Patterns, Functions and Algebra

Pattern is all around us. Children encounter patterns and **sequences** in people's behaviour, in daily routines, days of the week, months of the year, in weather cycles, in music and art, and in their built environment. For example:

- clothes

Figure 54 Patterns in clothes

GLOSSARY

pattern
the regular sequence of objects, movements or events that are repeated in a predictable way

sequence
the particular order in which objects, movements or events follow each other

Go atiša le go arola

- ngatana, dihlopha tša bobedi, boraro, …
- abaganya ka go lekana
- abelana, abelana magareng/gare ga
- mphe e tee/ya go feta tee ka nako
- swana le, fapana le
- go šetše tše kae, šetše

Tekanyo

- lekanya, swantšha
- tša go swana
- go swana le, fapana le
- dira
- lekana le
- dihlopha tša go lekana

Akanya

- lekanya, swantšha
- akanya gore ke tše kae; akanya
- kgaufsi, kgaufsi le
- nyakile go lekana
- ka tlase, ka godimo
- tše ntši, tše mmalwa, lekana, ga di lekane

Dipatrone, Difankšene le Altšebra

Dipaterone di re dikaneditše gohle. Bana ba kgona go bona dipaterone le **tatelano**, ka tlhopho le mekgwa bathong, le ka mešomo yeo ba e dirago ka letšatši, matšatši a beke, dikgwedi tša ngwaga, phetogo ya dihla tša ngwaga, mminong le bokgabo gape le tikologong. Go fa mohlala:

- diaparo

Seswantšho sa 54 Dipaterone diaparong

TLHALOŠANTŠU

paterone
peakanyo goba tsela ya go dira dilo go ya ka tatelano, tshepetšo le ditiragalo ka mokgwa wa go tlwaelega

tatelano
tsela yeo dilo, tshepetšo goba ditiragalo di latelanago ka gona

- buildings

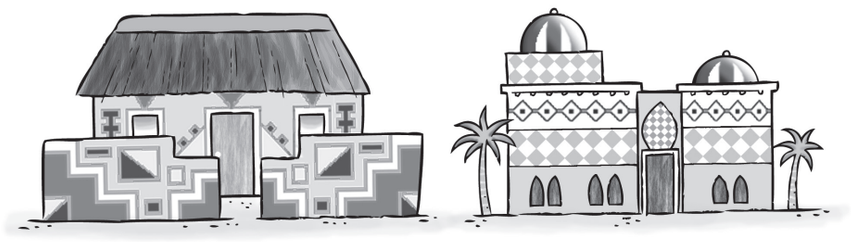


Figure 55 Patterns in buildings

- nature

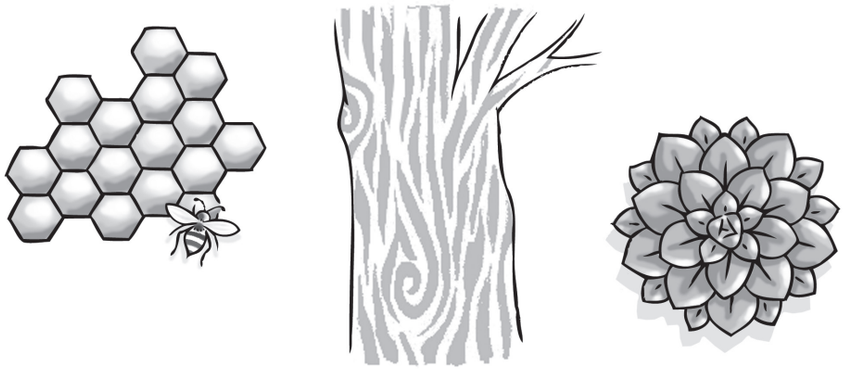


Figure 56 Patterns in nature

Identifying patterns

Young children tend to focus on the colour and attractiveness of a picture or object, e.g. a piece of wrapping paper, and will say it has a 'pretty pattern'. Most of these patterns are **irregular patterns**. We can see that there is a repetition of objects, colours or shapes, but we cannot tell how the repetition works.

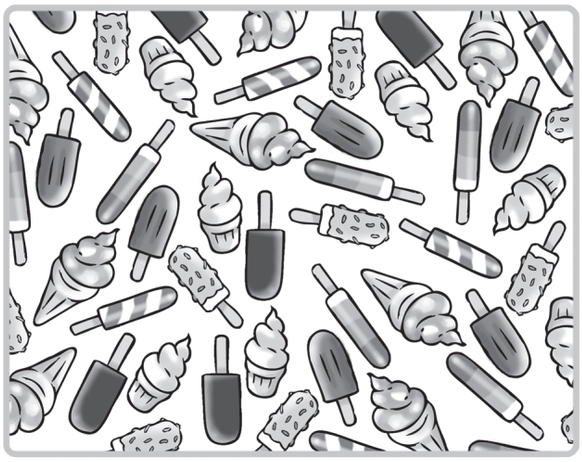
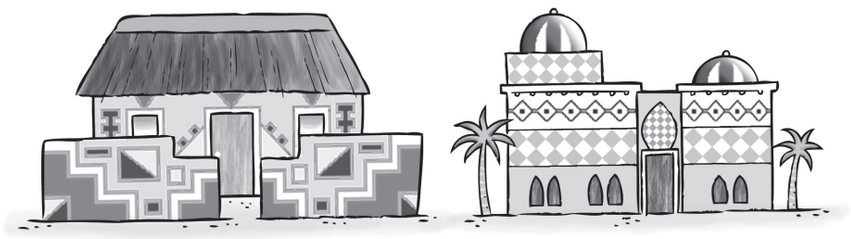


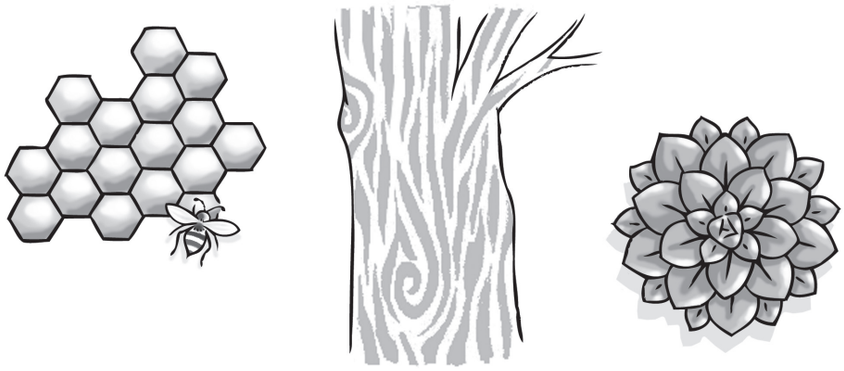
Figure 57 Irregular patterns

- meago



Seswantšho sa 55 Dipaterone tša meago

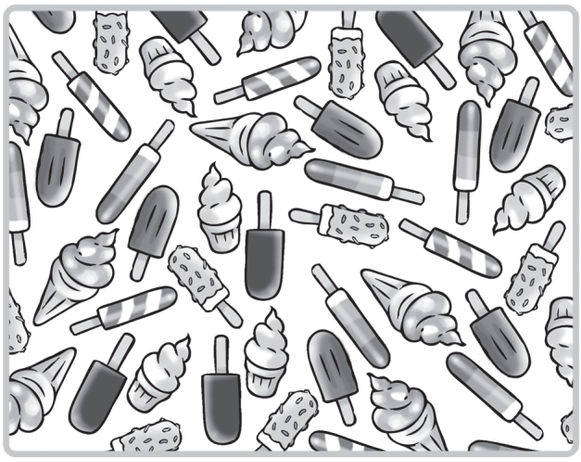
- hlago



Seswantšho sa 56 Dipaterone tša hlago

Go hlatha dipaterone

Bana ba tsepelela dilo goba diswantšho tša mebala ye mebotse ya go kgahliša, mohl. pampiri ya go phuthela ya mebala le 'dipaterone tša go kgahliša'. Gantši **dipaterone ga tša tlwaelega**. Re kgona go bona gore go na le poeletšo ya dilo, mmala le dibopego efela ga re tsebe gore poeletšo yeo e šoma ka mokgwa ofe.



Seswantšho sa 57 Dipaterone tša go se tlwaelege

Teachers should draw learners' attention to patterns inside and outside the classroom. For example, point out how the bricks in a wall are arranged, the paving tiles in a path or the markings on animals.

Figure 58 Patterns around us

In a **regular pattern** we can see how the **elements** in a pattern are repeated and we can predict the order or sequence that the pattern will follow, e.g. in the pattern below we can see that the circle and square are repeated and we can predict that the next shape in the sequence will be a circle, followed by a square, and so on.

GLOSSARY

elements
the objects, movements or events in a pattern

Figure 59 Circle, square pattern

In Grade R, learners may be able to recognise a pattern, but they may not be able to identify or describe 'what makes the pattern'. Teachers can help learners identify patterns by asking them what makes a particular pattern and how the elements are sequenced. For example, in the pattern above: 'Which shape is first? Which shape is next? What shape do you think will come next?'

Different types of patterns

Geometric patterns

A geometric pattern is a pattern that is made of lines and geometric shapes that are arranged in a repeated order, for example, a rhombus, rectangle, square or pentagon. Geometric patterns can be found all around us, e.g. on floor tiles and wrapping paper.

Figure 60 Geometric patterns

Morutiši, o swanetše go thuša barutwana go lemoga dipaterone tša go fapana ka ntle le ka gare ga phapoši. Go fa mohlala, bontšha barutwana ka fao ditena di šomišitšwego go aga lebota, ditaele tša tselana goba dikgabiši tša diphoofolo.

Seswantšho sa 58 Dipaterone tšeo di re dikaneditšego

Dipateroneng tša go tlwaelega re kgona go bona **dielemente/dika** tša poeletšo gomme re kgona go gopola gore di tla latelana bjang, mohl. dipaterone tšeo di lego ka tlase re kgona go bona didiko le dikhutlonne le ka fao di latelanago ka gona gomme ra kgona go bona gore tša go latela di swanetše go tšea sebopego sefe.

TLHALOŠANTŠU

dielemente/dika
dilo, tšhepetšo goba ditiragalo tša paterone

Seswantšho sa 59 Dipaterone tša sediko le khutlonne

Mphatong wa R, barutwana ba ka lemoga paterone efela ba palelwa ke go e šupa le go hlaloša go re 'e dirilwe ka mokgwa ofe'. Barutiši ba swanetše go thuša barutwana go tseba le go šupa dipaterone le ka fao dielemente tša tšona di latelanago ka gona. Go fa mohlala, pateroneng ya ka godimo: 'Go thoma sebopego sefe? Gwa latela sefe? O gopola gore go tla latela sefe?'

Dipaterone tša go fapana

Dikaelo tša tšeometri

Kaelo ya tšeometri ke paterone yeo e dirilwego ka methaladi le dibopego tša tšeometri tšeo di latelago tatelano ye e rilego, go fa mohlala, a rompus, khutlonne, khutlonnethwi goba khutlohlakorehlano. Dipaterone tša tšeometri di hwetšwa gohle, mohl. dithaele maboteng goba fase le dipampiring tša go phuthela dilo.

Seswantšho sa 60 Dibopego tša tšeometri

Repeating patterns

Repeating patterns are made up of a repeated sequence of elements, for example, shapes, colours, sounds, objects, movement or events. In a repeating pattern, the same elements are repeated regularly.

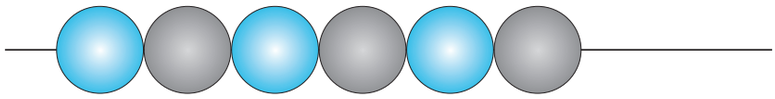


Figure 61 AB pattern

Start by introducing learners to patterns with only one **attribute** that differs, e.g. colour or shape, and provide a long enough repeat sequence so that learners can work out the pattern.

Learners can then recognise more challenging patterns, such as ABB or AABB patterns.

GLOSSARY

attribute
a feature or characteristic of something, for example, colour or shape

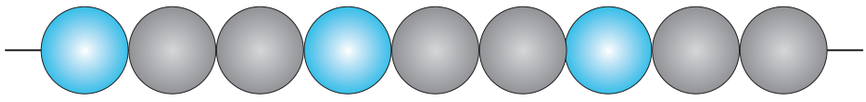


Figure 62 ABB pattern

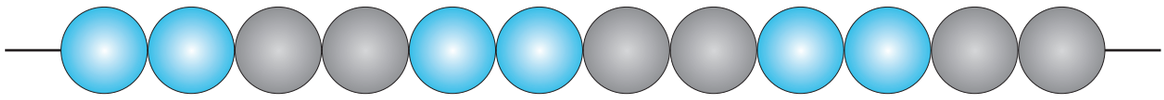


Figure 63 AABB pattern

Gradually introduce learners to patterns that have two or more attributes, such as colour and shape.

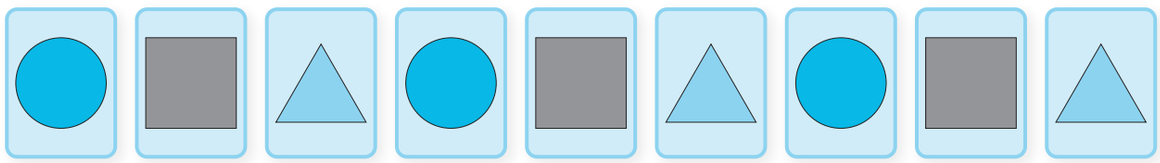


Figure 64 ABC pattern

Growing patterns

Growing patterns are different from repeating patterns in that the pattern increases or decreases in size in each sequence. In the pattern in Figure 65, the number of coloured blocks increases by one in each sequence of blocks.

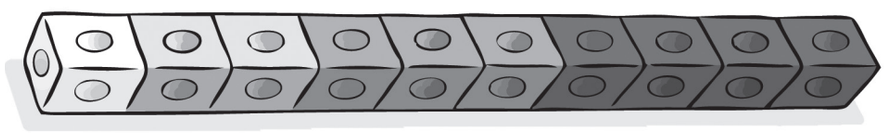
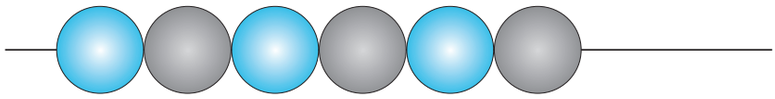


Figure 65 Growing pattern

Dibopego tša go boeletša

Dibopego tša go boleletša di dirwa ke poleletšo le tatelano ya dielemente, go fa mohlala, dibopego, mebala, medumo, dilo, tshepetšo goba ditiragalo. Dibopegong tša go boeletša, dielemente di boeletšwa gantši.



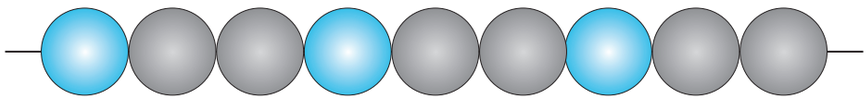
Seswantšho sa 61 Paterone ya AB

Thoma ka go tsebiša barutwana paterone ka go **hlaola selo se tee (lehlaodi)** seo se fapanago, mohl. mmala goba sebopego, o ba fe sebaka sa go bušeletša go fihla ka kgona go bona le go kwešiša paterone.

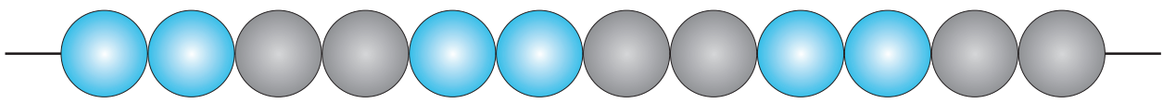
Barutwana ba ka lemoga dipaterone tša bothata bjalo ka ABB goba AABB.

TLHALOŠANTŠU

hlaola selo se tee (lehlaodi)
selo se se re thušago go hlaola selo magareng ga tše dingwe, go fa mohlala, mmala goba sebopego

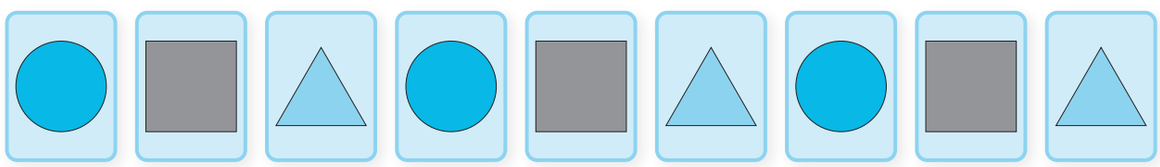


Seswantšho sa 62 Paterone ya ABB



Seswantšho sa 63 Paterone ya AABB

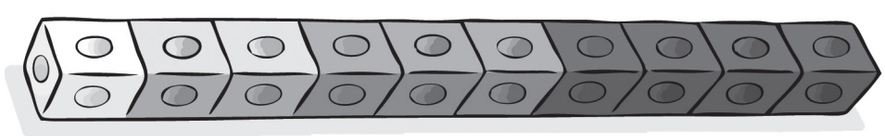
Ga nnyane ga nnyane tsebiša barutwana dipaterone tšeo di nago le dielemente tše pedi goba go feta, bjalo ka mmala goba sebopego.



Seswantšho sa 64 Paterone ya ABC

Kgolo ya dipaterone

Kgolo ya dipaterone e fapana le poeletšo ya dipaterone ka gobane saese ya dipaterone e a godišwa goba tša nyenyefatšwa. Pateroneng yeo e lego Seswantšhong sa 65, palo ya dipaterone tšeo di mmalafaditšwego e a gola.



Seswantšho sa 65 Kgolo ya paterone

Learners can associate the pattern with the sequence of numbers and recognise that the number increases by one each time.

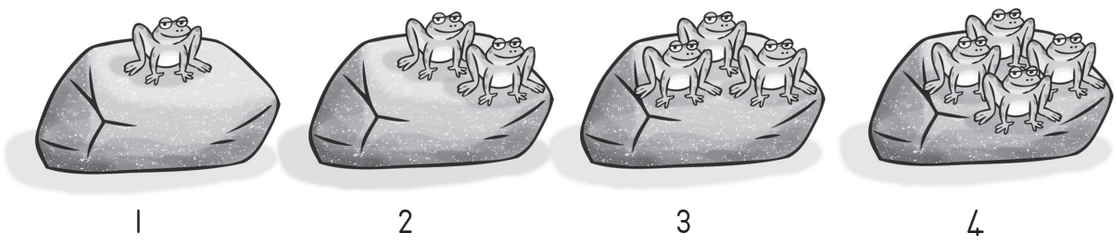


Figure 66 Growing pattern

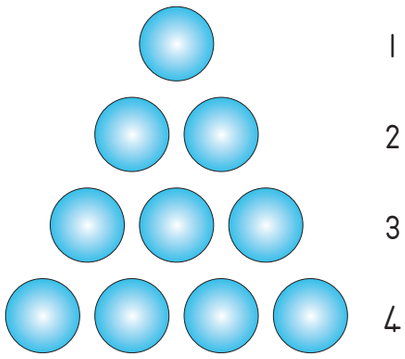


Figure 67 Growing pattern

In the pattern below, the sequence increases by two each time.

Figure 68 Growing pattern

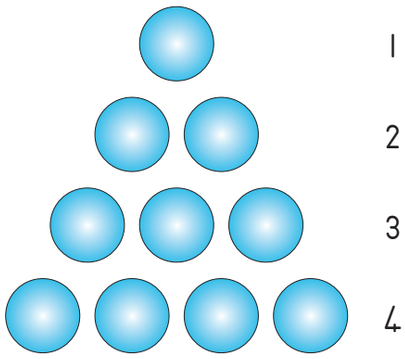
Patterning skills – what learners need to know

Learners' skills will vary, but generally Grade R learners will work towards being able to:

- match and sort objects according to one or more attribute, e.g. shape, colour, sound
- compare similarities and differences in two or more objects
- talk about patterns that arise from daily experiences
- recognise patterns in their environment, e.g. fence posts, bricks, paving
- identify patterns
- copy patterns that others have made
- extend patterns that others have started

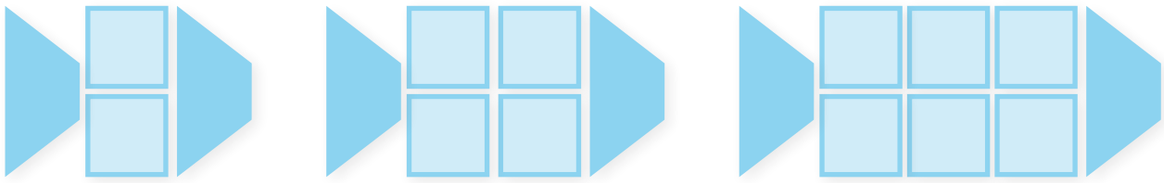
Barutwana ba ka tswalanya paterone le tatelano le palo gomme ba kgona go lemoga ge palo e golela godimo ka e tee ka nako.

Seswantšho sa 66 Kgolo ya paterone



Seswantšho sa 67 Kgolo ya paterone

Pateroneng yeo e lego ka tlase, tatelano e gola ka dinomoro tše pedi nako le nako.



Seswantšho sa 68 Kgolo ya paterone

Mabokgoni a go dira dipaterone – barutwana ba swanetše go tseba eng

Bokgoni bja barutwana bo tla fapana efela ka kakaretšo barutwana ba Mphatong wa R ba ithuta le go tseba go:

- tswalanya le hlaola dilo tša go swana, mohl. dibopego, mmala, modumo
- ditshwano le diphapano dilong tše pedi goba go feta
- bolela ka dipaterone tšeo ba di bonago ka mehla
- hlokomela dipaterone tikologong, mohl. ditshipi tša legora, ditena, boalo bja ditena
- laetša dipaterone
- ekiša diparetone tšeo di dirilwego ke bangwe
- katološa dipaterone tšeo ba bangwe ba di thomilego

- create their own patterns at various levels of difficulty such as:

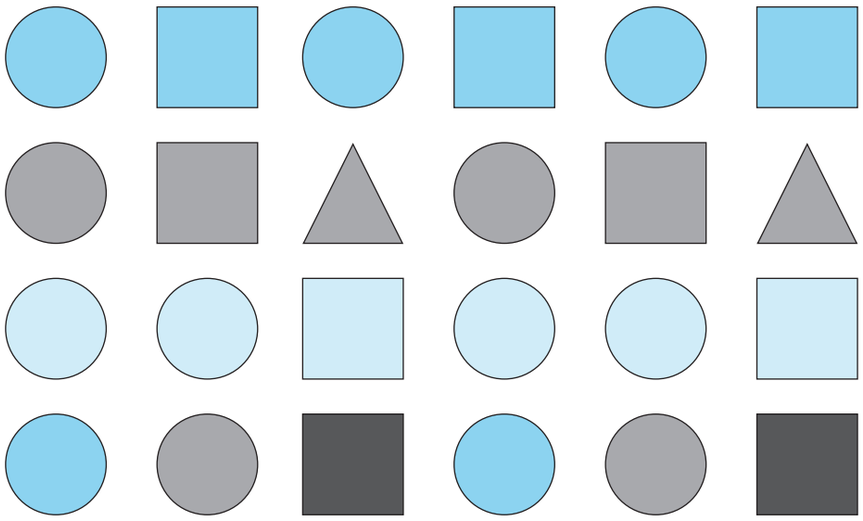


Figure 69 Creating patterns

- tell what is missing if part of a pattern is hidden.

In practice ...

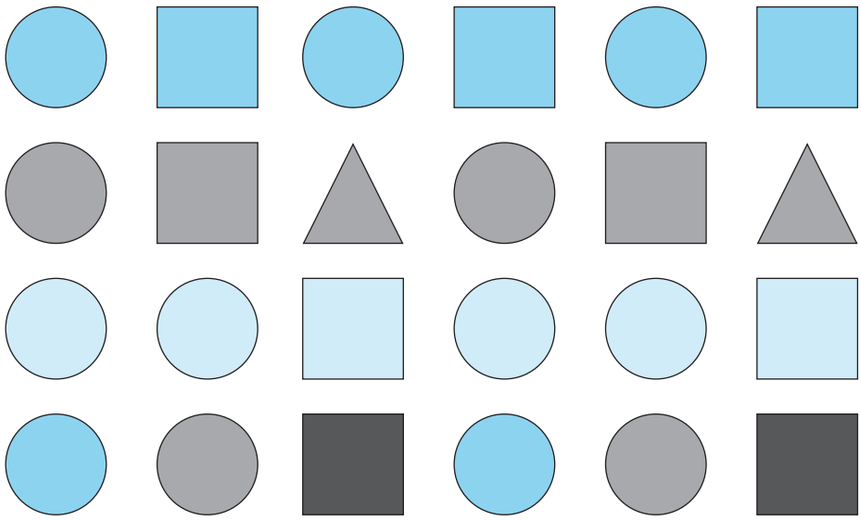
Teachers should guide learners to recognise and make patterns and provide opportunities for them to observe, describe and discuss patterns, focusing on activities that involve:

- talking about 'what makes the pattern'
- exploring patterns using objects, pictures and rhythm, such as clapping, in the maths focus time as well as in creative art, music and physical activities outdoors
- making their own patterns and talking about how and why they have sequenced elements in a particular way
- drawing patterns and using different colours and shapes, and to talk about the way the pattern is repeated.

Questions to ask for Patterns, Functions and Algebra

- Can you see a pattern? Tell me about it.
- What comes first, last, next, after, before?
- Are these two patterns the same? What is different? How could you make them the same?
- Can you copy this pattern? What will come next in the pattern?
- What must I do to extend this pattern?
- Can you tell me what your pattern is? Could you make a different pattern? What is missing in this pattern?

- hlama dipaterone tša bona tša bothata bja go fapana:



Seswantšho sa 69 Hlama dipaterone

- bolela go re go tlogetšwe efe.

Go ikatiša ...

Barutiši ba swanetše go hlahla barutwana go lemoga le go dira dipaterone le go ba fa monyetla wa go lebeledišiša, go hlaloša le go ahlaahla dipaterone, ka mešomo ya go:

- bolela ka 'paterone gore e dirwa ke eng'
- utolla dipaterone ka go šomiša dilo, diswantšho le medumo, bjalo ka go phaphatha, ka nako ya dipalo, bokgabo, mmino le go itšhidulla ka nako ya mešomo ya ka ntle ga phapoši
- go dira dipaterone tša bona le go bolela ka fao ba latelantšego dielemente
- thala dipaterone le go šomiša mebala le dibopego tša go fapana, ba bolela ka fao paterone e boeletšago ka gona.

Dipotšitšo tša Dipatrone, Difankšene le Altšebra

- A o bona paterone? Mpotše ka yona.
- Go tla eng pele, mafelelong, latela, ka morago, ka pele?
- Na dipaterone tše di a swana? Go fapana eng? O ka dira eng gore di swane?
- O ka kopolla paterone ye? Go latela eng pateroneng?
- O ka dira eng go oketša paerone?
- O ka mpotša gore paterone ya gago ke efe? O ka dira paterone ya go fapana? Go tlogetšwe eng pateroneng ye?

Vocabulary for Patterns, Functions and Algebra

- match, compare, order, sequence
- start, beginning
- first, middle, last
- before, after, end
- which is next …?
- size
- big, bigger, biggest
- small, smaller, smallest
- same, different, difference
- colour names
- build the pattern
- recognise
- show, identify
- continue, carry on, extend
- copy
- repeat, again
- describe, explain
- what comes before/after?
- follows, between
- in a line, in a row
- space, spaced

Space and Shape (Geometry)

Young children explore shape and space during their everyday activities as they try to make sense of the forms and shapes around them, such as their mother's face, objects that move and their own bodies. They explore spatial concepts related to shape and space when they play with balls or get in and out of boxes and climb onto and under objects. They have observed different shapes in things in their homes and outside, such as clouds, buildings, leaves and vehicles.

Many children come to Grade R with some knowledge of different shapes and may be able to identify and draw shapes, such as circles and triangles. They may also have played with blocks, construction toys and puzzles. In Grade R, learners build on these experiences as they learn about space, shape, position, **orientation**, views and direction. They need plenty of opportunities to investigate and explore different everyday objects. These experiences of space and shape help to lay a solid foundation for understanding **geometry** in later grades.

GLOSSARY

orientation
how objects are placed in relation to each other

geometry
an aspect of mathematics that deals with properties, measurement and relationships of points, lines and angles of shapes in space

Tlotlontšu ya Dipatrone, Difankšene le Altšebra

- tswalanya, swantšha, beakanya, latelanya
- thoma, mathomong
- mathomo, gare, mefelelo
- pele ga, ka morago, mafelelo
- go latela efe …?
- saese/bogolo
- kgolo, kgolwane, kgolokgolo
- nnyane, nnyanenyane, nnyane ka go fetiša
- swana, fapana, phapano
- maina a mebala
- hlama paterone
- lemoga
- bontšha, šupa
- tšwelela, tšwelapele, katološa
- kopolla
- boeletša, gape
- hlaloša, laodiša
- go tla eng pele/ka morago?
- latela, gare
- ka mothaladi, mothalading
- sekgoba, sekgobeng

Sekgoba le Sebopego (Tšeometri)

Bana ba ithuta le go utolla popego le dikgoba ka nako ya mešongwana ya bona ya ka mehla, ba ithuta ge ba dutše ba leka go kwešiša dibopego tša bona, bjale ka difahlego tša batswadi ba bona, dilo tša go sepela le mebele ya bona. Ba ithuta le go utolla dibopego tša kamano ya popego le sekgoba ge ba raloka ka kgwele goba ba tsena ba etšwa ka mapokising, ba namela le go fologa dilo ka ntlong le ka ntle. Ba bona dilo tša mehuta ya dibopego bjalo ka maru, meago, mehlare le dikoloi.

Bana ba bantši ba tla Mphatong wa R ba na le tsebo ye e rileng ya dibopego, ba bangwe ba kgona le go di thala, ba kgona go thala didiko le dikhutlotharo. Ba bangwe ba tla ba tseba go raloka ka dipoloko, dibapadišwa tša go aga le marara. Ka Mphatong wa R, barutwana ba aga godimo ga tsebo yeo ba nago nayo ya dikgoba, popego, seemo, **peakanyo**, pono le ditšhupetšo. Ba hloka menyetla e fapanego go batlišiša le go utolla dilo tše fapaneng tša tšatši ka tšatši. Tsebo ye e aga motheo wa bona wa go ithuta **tšeometri** mephatong yeo e latelago.

TLHALOŠANTŠU

peakanyo
ka mokgwa woo dilo di beakantšwego ka gona

tšeometri
karolo ya dipalo yeo e bolelago ka dilo, kelo/tekanyo le tswalano ya dintlha, methaladi le dikhutlo tša dibopego le dikgoba

Space

Children orientate themselves in space using their own bodies. First they explore the relationship between themselves, other people and objects. Babies reach and grasp objects near to them, and then gradually start to move around and explore their environment using all their senses. They explore what happens when they push, pull, roll or turn different objects as they play with them, and when they do this they develop a sense of themselves in relation to the objects. They also learn the limitations of their own physical movement as they climb over and under chairs, into boxes, hide behind trees or look down from steps.

Position

Position in Grade R starts with the positions of objects in relation to the learner, and progresses to the position of objects in relation to other objects. Position vocabulary includes in, on, above, in front of, behind, in between, next to, and so on.

With the help of adults at home and teachers at school, Grade R learners can develop the vocabulary to describe space, position and direction as they play, look for objects or climb into and onto things.

In practice ...

There are many opportunities during the day for learners to think spatially and to use position vocabulary:

- in games
- when putting things away during tidy-up time
- when lining up
- when talking about where things are in pictures and stories.

To allow learners to explore their movements:

- create an obstacle course inside or outside using chairs, tyres, boxes and/or planks
- act out stories that use maths vocabulary about position, e.g. over and under, up and down, near and far, beside and between
- place objects in different positions and orientations
- ask learners to look at objects from different positions (view) and say what they see.

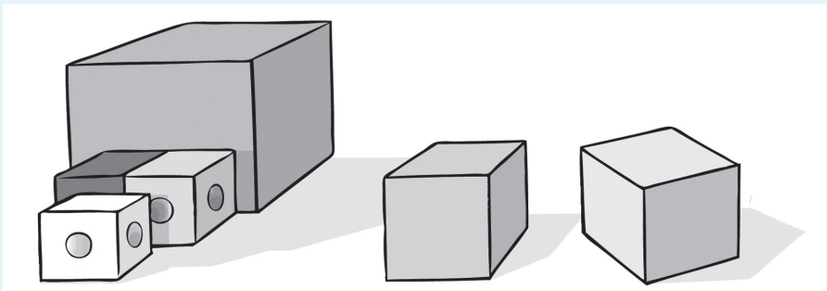


Figure 70 Exploring position

Sekgoba

Bana ba ithuta dibaka ka go šomiša mebele ya bona. Ba thoma ka tswalano magereng ba bona le batho ba bangwe le dilo tšeo di ba dikaneditšego. Bana ba obelela le go swara dilo tšeo di lego kgaufsi le bona, ba šomiša dikwi go kwešiša tikologo ya bona. Ba utolla go re go direga eng ge ba kgorametša goba go goga dilo tšeo ba ralokago ka tšona gomme ba kwešiša tswalano magereng ga bona le dilo tšeo ba ralokago ka tšona. Ba ithuta gape ka dilo tšeo di ba palelago go swana le go namela godimo ga goba go tsena ka tlase ga ditulo, ka gare ga mapokisi goba ba khuta ka mehlare goba ba lebelela fase ge ba le godimo mohlareng goba distepiseng.

Boemo

Ka Mphatong wa R boemo bo thoma ka fao dilo di beakantšwego kgahlanong le morutwana le dilo. Tlotlontšu ya boemo e akaretša ka gare, godimo, ka godimo, ka pele ga, ka morago, magareng, kgaufsi le, le tše dingwe.

Ka thušo ya batho ba bagolo gae le barutiši sekolong, barutwana ba Mphato wa R ba ithuta tlotlontšu ya go hlaloša sekgoba, seemo le tšhupetšo. Ba ithuta gape ka sekgoba, seemo le tšhupetšo ge ba raloka, ba lebelela, ba namela le go fologa dilo tša go fapana.

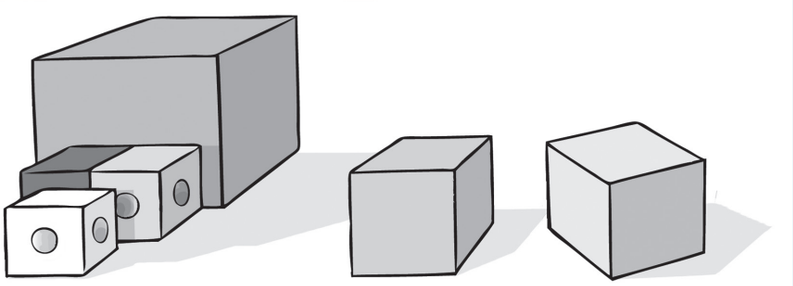
Go ikatiša ...

Go na le mabaka a mantši moo barutwana ba ka ithutago tlotlontšu ya seemo/boemo:

- ka dipapadi
- ge ba phutha/bea dilo madulong a tšona ka nako ya go hlwekiša
- ge ba ema ka mothaladi
- ge ba bolela gore dilo di kae diswantšhong le dikanegelong.

Barutwana ba swanetše go hwetša sebaka sa go ithuta mesepelo ya bona:

- dira lepetlelo la ditšhitišo o ka šomiša ditulo, dithaere, mapokisi goba mapolanka
- dira ditiragalo tšeo di šomišago tlotlontšu ya dipalo tša go bolela ka seemo, mohl. godimo le ka tlase, kgaufsi le kgole, kgaufsi le magareng
- bea dilo ka mekgwa ya go fapana le dikhutlo tša go fapana
- kgopela barutwana go lebelela dilo ka lehlakore la go fapana le go bolela seo ba se bonago.



Seswantšho sa 70 Utolla seemo

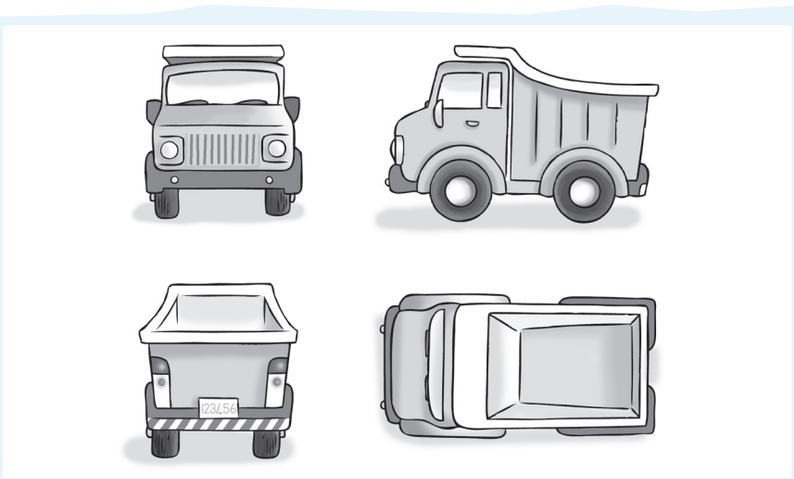


Figure 71 Different orientations

Direction

Learners in Grade R initially begin to show direction by pointing, then by using simple phrases like 'over there'. The concept of direction progresses from being about the position of where children are to where they are in relation to other things, e.g. go straight, turn, and so on.

In practice ...

Use direction vocabulary:

- during snack and tidy-up time
- when giving instructions about where to put things and how to get from one place to another
- when going on outings.

Perspective

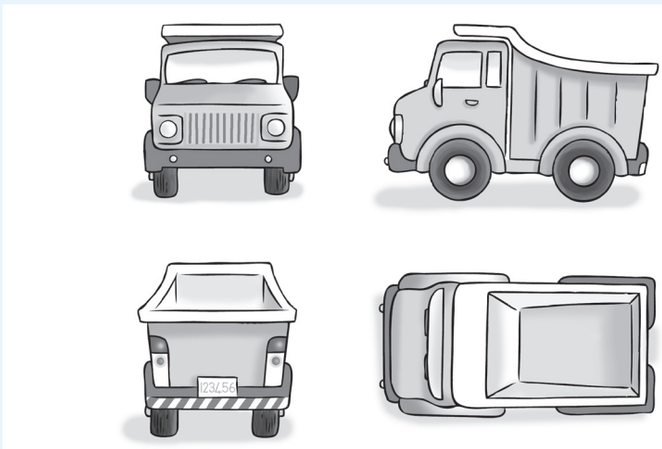
In Grade R, as learners' gain an increased understanding that when things are far away they look smaller, their concept of **perspective** develops.

In practice ...

- Observe people and objects outside the classroom and talk about why they look smaller.
- Close one eye and measure how big a person or object looks and talk about whether they are really that small.
- Focus attention on objects in pictures that appear to be small and talk about why this is so.

GLOSSARY

perspective
the effect of distance or depth on the appearance of objects



Seswantšho sa 71 Dikhutlo tša go fapana

Ditšhupetšo

Barutwana ba Mphato wa R ba ithuta ditšhupetšo ka go šupa, ka go šomiša tlotlontšu ye bonolo bjalo ka 'kua'. Ge dithuto di tšwelapele ba ithuta ditšhupetšo bjalo ka go tloga mo ba lego ge go bapetšwa le dilo tše dingwe, mohl. sepela thwii, retologa, le tše dingwe.

Go ikatiša ...

Šomiša tlotlontšu ya ditšhupetšo:

- ka nako ya dijo goba ya go hlwekiša
- ge o ba fa ditaelo gore ba bee eng kae le gore ba sepele bjang go tloga lefelong le lengwe go ya go le lengwe
- ge le eya maeto.

Tebego

Ka Mphatong wa R, barutwana ba thoma go ithuta le go kwešiša **tebego** gore ge o lebelela dilo tša kgole di lebelelega di le tše nnyane.

TLHALOŠANTŠU

tebego
ka mokgwa woo bogolo le botebo bja dilo bo tšwelelago go ya ka bokgole bja tšona

Go ikatiša ...

- Hlokomela batho le dilo tša ka ntle ga phapoši ba bolela gore gobaneng e le tše nnyane.
- Ba tswalela leihlo le tee gomme ba bolela gore dilo ke tše di kaakang gomme ba bolele le gore gobaneng ba realo le gore ka nnete di bjalo na.
- Hlokomela dilo tšeo di bonalago di le tše nnyane gomme ba bolele go re gobaneng ba nagana bjalo.

Shape

In Grade R, learners focus on recognising, identifying and naming **3-dimensional (3-D)** objects and **2-dimensional (2-D)** shapes. In everyday language, learners will say that they can look at the object from all sides, the top and the bottom. Mathematically we describe the **properties** of 3-D objects by their length, breadth (width) and height. In everyday language, learners will talk about 2-D shapes as pictures, but mathematically we talk about shapes as having length and breadth (width) to describe two dimensions.

Three-dimensional (3-D) objects

In Grade R, learners explore the properties of everyday 3-D objects. They build constructions using recycled household materials, such as boxes, cans, tubs, toilet roll inners and balls. They investigate and describe box- and ball-shaped objects. They compare and sort objects, and talk about similarities and differences.

GLOSSARY

2-dimensional (2-D)
a shape has two dimensions: length and breadth (width)

3-dimensional (3-D)
an object has three dimensions: length, breadth (width) and height

property
the characteristics of a 2-D shape or 3-D object, e.g. length, width, height, sides (faces), edges, corners

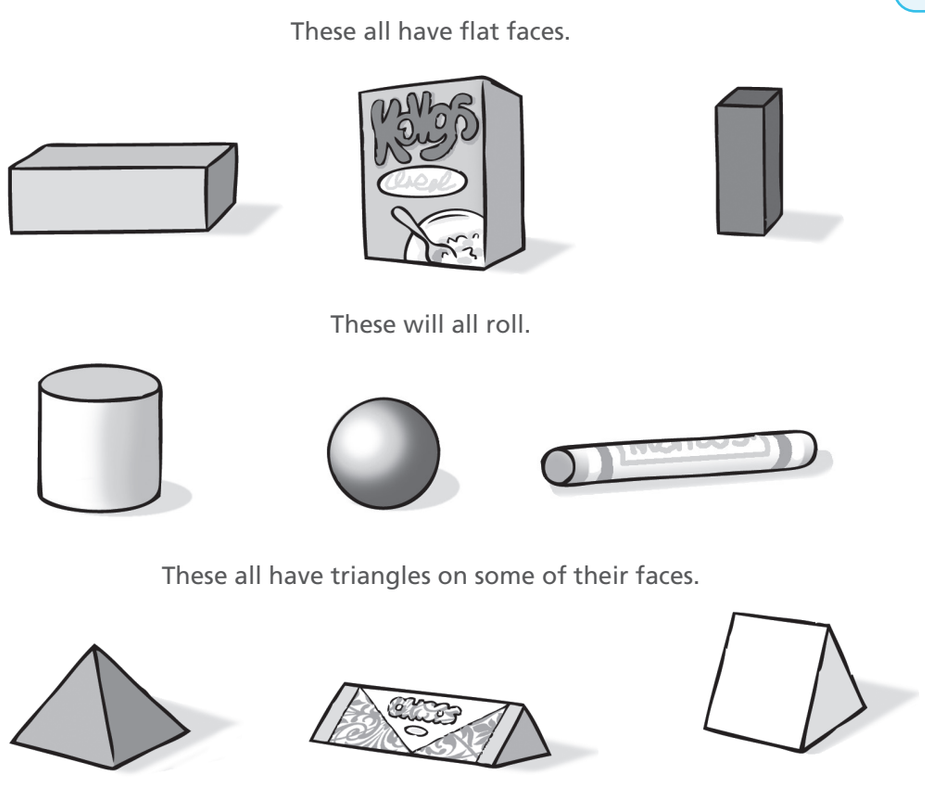


Figure 72 3-D objects

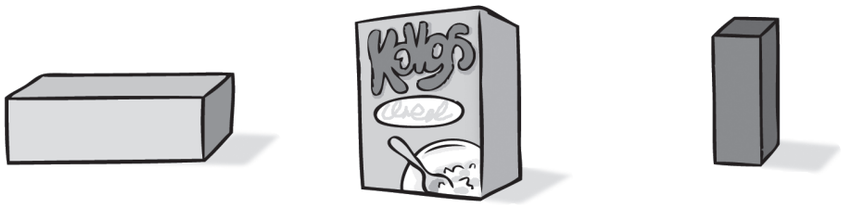
Sebopego

Ka Mphatong wa R, barutwana ba tsepelela, lemoga le go tseba maina a dilo tša **mahlakoretharo (3-D)** le dipopego tša **mahlakorepedi (2-D)**. Ka tlotlontšu ya ka mehla barutwana ba tla bolela gore ba kgona go bona mahlakore ka moka ebile ba bona le ka godimo le ka fase. Ka polelo ya dipalo ba tla bolela gore ba bona **dipharologantšho** tša khutlotharo ka botelele, bophara le bogodimo. Ka tlotlontšu ya ka mehla barutwana ba tla bolela ka diswantšho tša mahlakoremabedi efela ka polelo ya dipalo ba tla bolela ka sebopego, botelele le bophara.

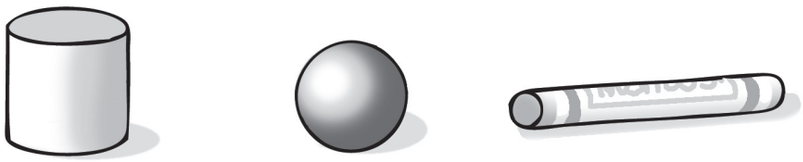
Dilo tša mahlakoretharo (3-D)

Mphatong wa R, barutwana ba ithuta le go utolla dielemente tša dilo tša 3-D. Ba aga dilo ba šomiša dilo tšeo di lego gona ka gae bjalo ka mapokisi, dikotikoti, dikotlelo le dikgwele. Ba nyakišiša le go hlaloša dibopego bjalo ka lepokisi goba kgwele. Ba swantšha le go hlaola dilo tša go swana le tša go fapana.

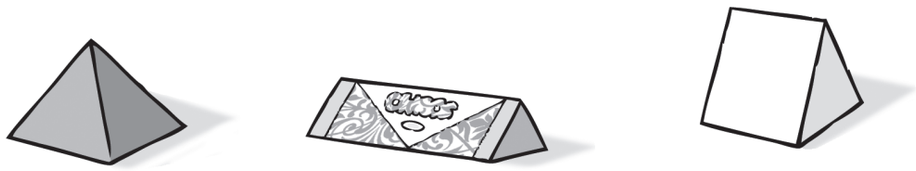
Tše ka moka di na le sephara ka godimo.



Tše ka moka di a kgokologa.



Tše ka moka di na le dikhutlotharo ka godimo.



TLHALOŠANTŠU

mahlakorepedi (2-D)
sebopego sa mahlakore a mabedi: botelele le bophara

mahlakoretharo (3-D)
dilo sa mahlakore a mararao: botelele, bophara le bogodimo

dipharologantšho
tšeo di farologanyago dibopego tša 2-D le dilo tša 3-D, mohl. botelele, bophara le bogodimo, mahlakore (difahlego), ntlha, khutlo

Seswantšho sa 72 Dilo tša 3-D

In practice ...

Learners can:

- Play with collections of 3-D objects including blocks, tins, boxes and balls.
- Describe objects. They can choose one object at a time. You can prompt their thinking through questioning, and introduce them to the correct names and properties of each object.
- Sort 3-D objects according to a particular property, such as straight edges or whether they can roll. This will allow learners to become familiar with, and to explore the properties of the objects.
- Describe these objects using everyday language, such as flat, smooth, pointy. As learners notice more properties they learn the appropriate names, e.g. edge, corner, surface or base, face. Sorting activities and discussions about objects are important because they help learners to understand, for example, that although a cardboard tube is tall and thin, while a drink can is much shorter, they are both cylinders.

Learners should be guided to recognise that it is the property of an object, such as the length, breadth or height, that we are focusing on when sorting and not the colour, size or other features.

Grade R learners may ask what the name of an object is, e.g. a cube, cylinder or cone. In higher grades learners learn about the 3-D solids shown in Figure 73.

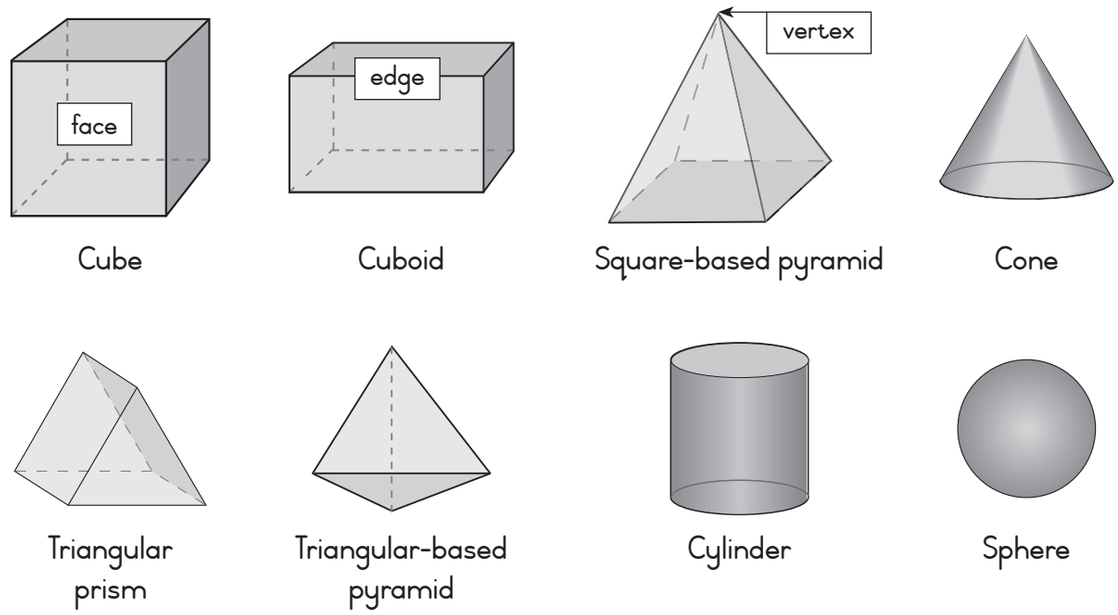


Figure 73 3-D solids

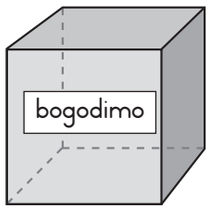
Go ikatiša ...

Barutwana ba ka:

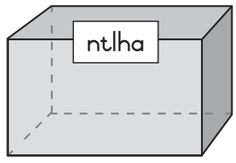
- Bapala ka dilo tša kgoboketšo ya 3-D go akaretša dipoloko, dithini, mapokiši le dikgwele.
- Hlaloša dilo. Ba ka kgetha selo se tee ka nako. O ka ba botšiša dipotšišo gomme wa ba ruta maina a maleba a dilo tšeo.
- Hlaola dilo tša 3-D go ya ka dielemente bjalo ka bophaphathi goba ka go thetheoga. Se se tla thuša barutwana go tseba dilo tša go fapana.
- Hlaloša dilo tše ka tlotlontšu ya ka mehla bjalo ka phaphathi, thelela le ntlha. Barutwana ba ithuta dielemente le maina a maleba, mohl. bogale, sekhutlo, bogodimo le botlase. Go hlaola le go bolela ka dilo go bohlokwa gobane go ba ruta go kwešiša gore selo ke se setelele mola se sengwe e ka ba se se koto se se kopana efela ka moka e le disilintara.

Barutwana ba swanetše go hlahlwa go kwešiša dielemente tša dilo bjalo ka, botelele, bophara, bogodimo, ba lemoge gore ke go hlaola efala ga se ga mmala, saese le sebopego.

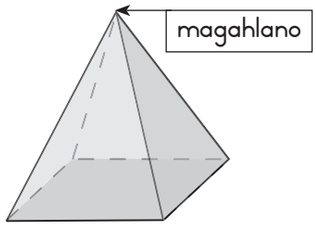
Barutwana ba Mphato wa R ba tla botšiša maina a dilo, mohl. poloko, silintara goba khoune. Mphatong ya go latela barutwana ba tla ithuta ka dilo tša 3-D tšeo di bontšhwago Seswantšhong sa 73.



Poloko

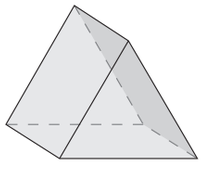


Poloko ya mahlakoremararo

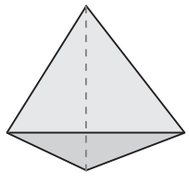


Phiramiti ya botlase bja sekwere

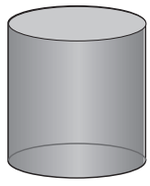
Khouno



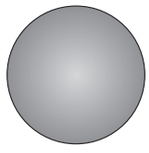
Khutlotharo



Phiramiti ya botlase bja khutlotharo



Silintara



Sediko/ Nkgokolo

Seswantšho sa 73 Dilo tša 3-D

Two-dimensional (2-D) shapes

In Grade R, learners recognise, identify and name 2-D shapes: circles, triangles, squares and rectangles. Inside and outside the classroom they see shapes and can explore the properties of these shapes in pictures and look for objects that 'look like' shapes, e.g. a road sign might look like a circle, the windowpane like a square, the door like a rectangle.

In practice ...

Learners can:

- Explore the properties of 2-D shapes inside and outside the classroom, such as circles, squares, rectangles and triangles.
- Look for objects that have a 'square' shape, referring to the side or face of a box, or a 'circle' shape, referring to a road sign or the base or edge of a cup.
- Describe 2-D shapes of various sizes and orientations in pictures.

Learners need to see a variety of 2-D shapes, e.g. different triangles (not just equilateral ones), and rectangles of different sizes. This helps the learners realise what particular shapes have in common, for example, that all triangles have three sides and three corners, but may not look exactly the same, and that rectangles have four sides regardless of the orientation.

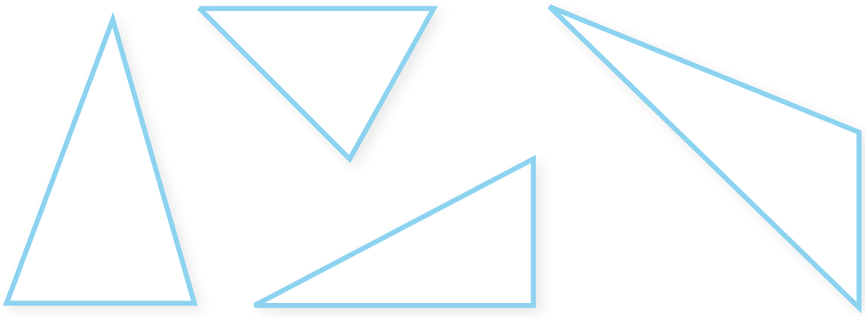


Figure 74 Shapes with three sides

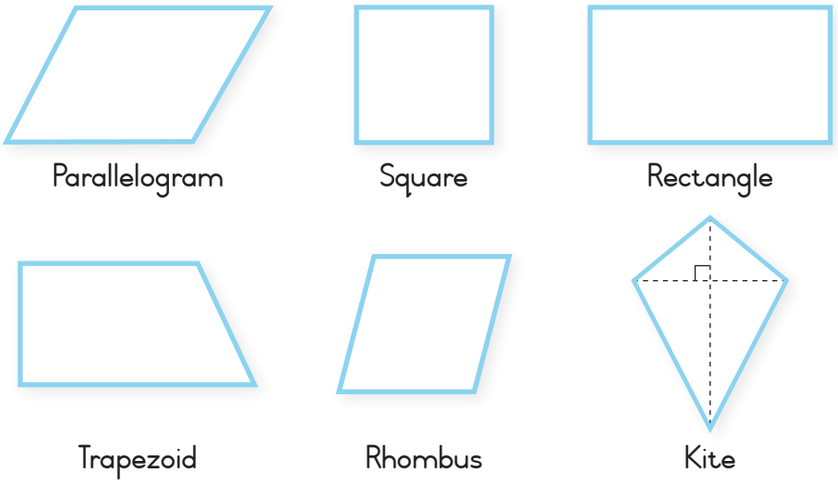


Figure 75 Shapes with four sides

Dibopego tša mahlakoretharo (2-D)

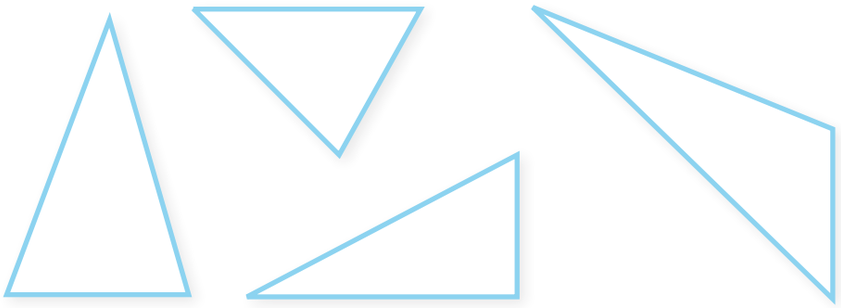
Mphatong wa R, barutwana ba ithuta go lemoga, go tseba le maina a dibopego tša 2-D: didiko, dikhutlotharo, dikhutlonne le dikhutlonnethwii. Ka ntle le ka gare ga phapoši ba bona dielemente tša dibopego diswantšhong le 'dilong tša go swana le' dibopego, mohl. leswao la tsela le sediko, lefasetere (letsikangope) la sekwere, lebati la khutlonnethwii.

Go ikatiša ...

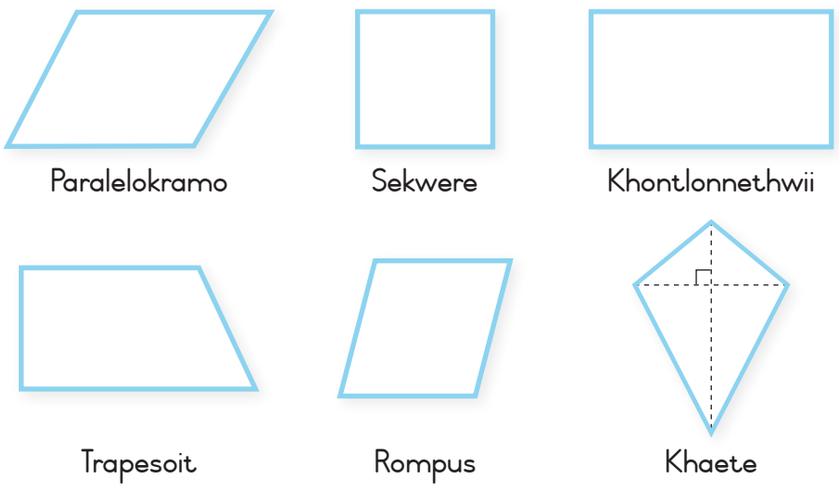
Barutwana ba ka:

- Utolla dielemete tša dibopego tša 2-D ka ntle le ka gare ga phapoši, bjalo ka didiko, dikhutlonne/sekwere, dikhutlonnethwii le dikhutlotharo.
- Nyaka dilo tša sebopego sa 'sekwere', ba bontšhe ka mathoko goba ka godimo goba ba bontšhe leswao la tsela 'sediko' goba bo tlase bja komiki.
- Hlaloša dibopego tša 2-D tša go fapana ka disaese le seemo.

Barutwana ba swanetše go bona dibopego tša go fapana tša 2-D, mohl. dikhutlotharo tša go fapana (esego fela khutlotharo ya mahlakore a go lekana), dikhutlonnethwii tša seelo sa go fapana. Se se thuša barutwana go lemoga gore dibopego di ka swana efela tša se swane swanisani, mohl. gore dikhutlonnethwii tšohle di na le mahlakore a mararo go sa šetšwe tebego ya sona, le gore dikhutlonnethwii di na le mahlakore a le mane.



Seswantšho sa 74 Dibopego tša mahlakoretharo



Seswantšho sa 75 Dibopego tša mahlakoremane

Give learners opportunities to explore 2-D shapes during independent play activities. Make a variety of materials available – plastic shapes (attribute blocks) and cardboard shapes of different colours and sizes – and then encourage learners to use them to create patterns, pictures and simple representations. During these activities, teachers can discuss with learners what they are doing and ask encouraging questions such as: 'Tell me about the pattern you are making.' 'That is a lovely house, how did you make it? Describe the steps to your partner.'

When Grade R learners begin to investigate and describe shapes and objects, they often use everyday language, such as flat, smooth, pointy. Gradually teachers can help them learn to focus on the lines of a shape or object and use maths terms to replace the everyday ones – sides, curved, straight, corner.

Learners' understanding of the properties of shapes develops as they are able to recognise **differences** and **similarities** between shapes. This can be done through sorting and classifying activities as well as through matching activities, such as deciding whether a shape will fit in a jigsaw or a construction, or playing shape lotto.

Figure 76 Differences and similarities of shapes

In practice ...

Go from 3-D to 2-D

Trace around learners and other objects in the classroom to see and talk about the 'picture' that is formed. Learners can dip objects in paint and press them on paper to make prints. They can also trace around the edge of objects and talk about the line and shape they create. Bowls, building blocks, toilet roll inners, and almost any recycled materials can be used to create shape pictures in this way.

Shape games

Learners play in pairs. One learner hides a shape or object behind her/his back and the other learner asks questions about it until she/he can guess what it is. 'Is it flat? Does it have three sides?'

Teachers can challenge learners to make as many different shapes as possible on a geoboard.

Efa barutwana sebaka sa go ithuta le go utolla dibopego tša 2-D ka nako ya go raloka ba sa šetšwe. Nyaka dilo tša go fapana – dibopego tša dipolastiki (dipoloko tša go aga) le mapokisi a dibopego le disaese tša go fapana – o hlohleletše barutwana go dira dipaterone tša go fapana ka diswantšho le dilo tše bonolo. Ka nako ya mešomo ya go se šetšwe ba botšiše gore na ba dira eng. Ba botšiše dipotšišo tša go hlohleletša bjalo ka: 'Mpotše gore o dira dibopego dife.' 'Ke ntlo ya botse yeo, o e dirile bjang? Hlalošetša mongkawena magato a o a latetšego.'

Ge barutwana ba Mphato wa R ba thoma go nyakišiša le go hlaloša dibopego ba šomiša tlotlontšu ya ka mehla bjalo ka phaphathi, thelela, ntlha. Ge ba tšwelapele ka dithuto ba thoma go lemoga methaladi ya dibopego goba dilo gomme ba šomiša tlotlontšu ya dipalo – mahlakore, sediko/kgopama, otlologa, khutlo.

Barutwana ba thoma go kwešiša dielemente tša dibopego gomme ba thoma go lemoga **diphapano** le **ditshwano**. Se se ka dirwa ka mešomo ya go hlaola le go hlopha le ka go swantšha goba lekanya go tšea sephetho sa gore go tla lekana efe ge ba šomiša marara goba tša go aga goba go raloka *lotto* ya popego.

Seswantšho sa 76 Dibopego tša go swana le tša go fapana

Go ikatiša ...

Go tloga go 3-D go ya go 2-D

Lebelelang barutwana le dilo tšeo di le dikanedi tšego gore le kgone go bolela le go bopa 'senswantšho' sa monagano ka tšona. Barutwana ba ka penta goba ba gatiša diswantšho. Ba ka gatiša go latela dilo morago ba bolela ka methaladi le sebopego tšeo ba di dirilego. Dikotlelo, meago, dipoloko le dilo tše dingwe tša go dirišwalefsa di ka šomišwa go dira diswantšho tša dibopego.

Dipapadi tša dibopego

Barutwana ba ka bapala ka bobedi ka bobedi. Morutwana o tee a fihla selo gomme a botšiša yo mongwe dipotšišo ka seo a se fihlilego go fihlela a se tseba. 'E sephara? E na le mahlakore a makae?'

Barutiši ba ka hlohleletša barutwana go dira dibopego tša go fapana porotong ya tšeometri.

Build and take apart shapes

Once learners can identify 2-D shapes (square, circle, triangle, rectangle) and 3-D objects (boxes and balls), they are ready to build and then take apart shapes:

- Straws, sticks and other similar materials can be used with playdough to make shapes.
- Ask learners to make a shape and discuss it. 'That's a square. Can you turn it into a triangle?'

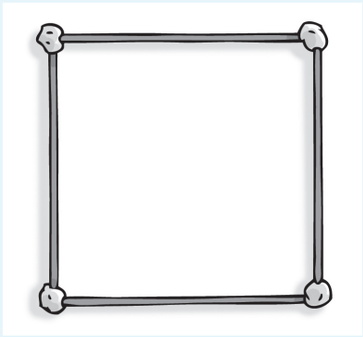


Figure 77 Building shapes

Construct shape pictures

Learners can use attribute blocks to create a picture.

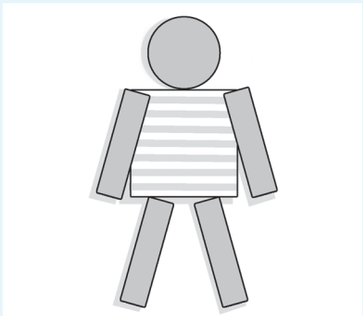


Figure 78 A shape picture

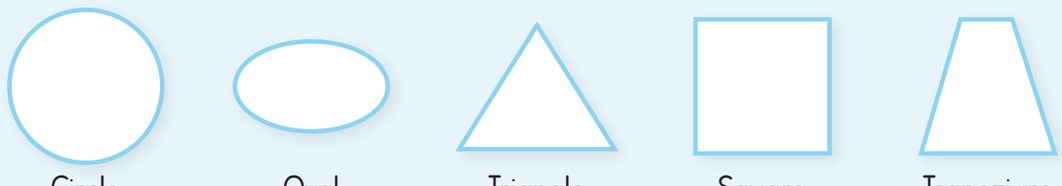
They can glue cut-out shapes onto paper to form other shapes or pictures.

They can roll, pinch and press playdough to make shapes and combine these to make new shapes.

Transformations

Learners slide, flip and turn shapes as they solve problems involving shapes, such as matching shapes in pictures, and copying shape patterns using attribute blocks.

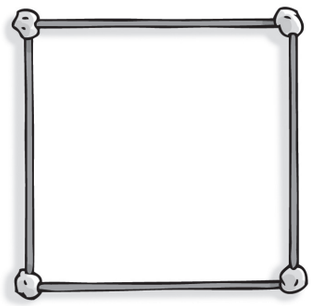
In higher grades learners will learn about a range of 2-D shapes. Learners in Grade R will often ask teachers and adults what a shape is called and the diagrams below provide a reference for these instances.



Go aga le go phušula dibopego

Ge barutwana ba kgona go lemoga dibopego tša 2-D (sekwere, sediko, khutlotharo, khutlonnethwii) le dilo tša 3-D (mapokisi le dikgwele), ba ka kgona go aga le go phušula dibopego:

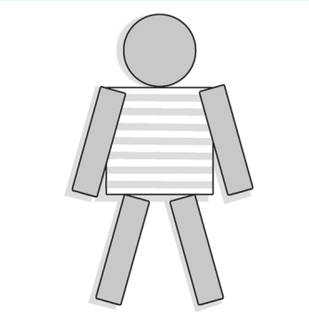
- Mathopo, dipatlana le tše dingwe tša go swana di ka šomišwa le letsopa la go bapala go dira dibopego.
- Kgopela barutwana go dira dibopego gomme le di ahlaahle. 'Ke sekwere. O ka e dira khutlotharo?'



Seswantšho sa 77 Go aga dibopego

Go aga dibopego tša diswantšho

Barutwana ba šomiša dipoloko tša go aga go dira diswantšho.



Seswantšho sa 78 Seswantšho sa sebopego

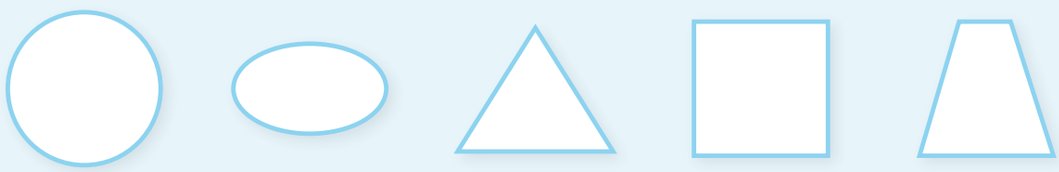
Ba ka mamaretša dibopego tšeo ba di segilego letlakaleng go dira dibopego tše difsa goba diswantšho.

Ba ka tatetša, sobasoba le go gatelela tege ya go bapala go dira dibopego tše diswa.

Diphetogo

Barutwana ba ka fetola goba ba beakantša lefsa dibopego go rarolla goba go dira dibopego tše difsa, ba ka dira tše ka go tswalanya dibopego tšeo di lego diswantšhong goba go kopolla dipaterone tšeo di le dipapadišing tša go aga.

Mephatong ya ka godimo, barutwana ba tla ithuta ka dibopego tša go fapana tša 2-D. Barutwana ba Mphatong wa R gantši ba tla botšiša batswadi goba barutiši gore ke sebopego se fe se, seswantšho seo se lego ka tlase se bontšha mabaka a ma bjalo.



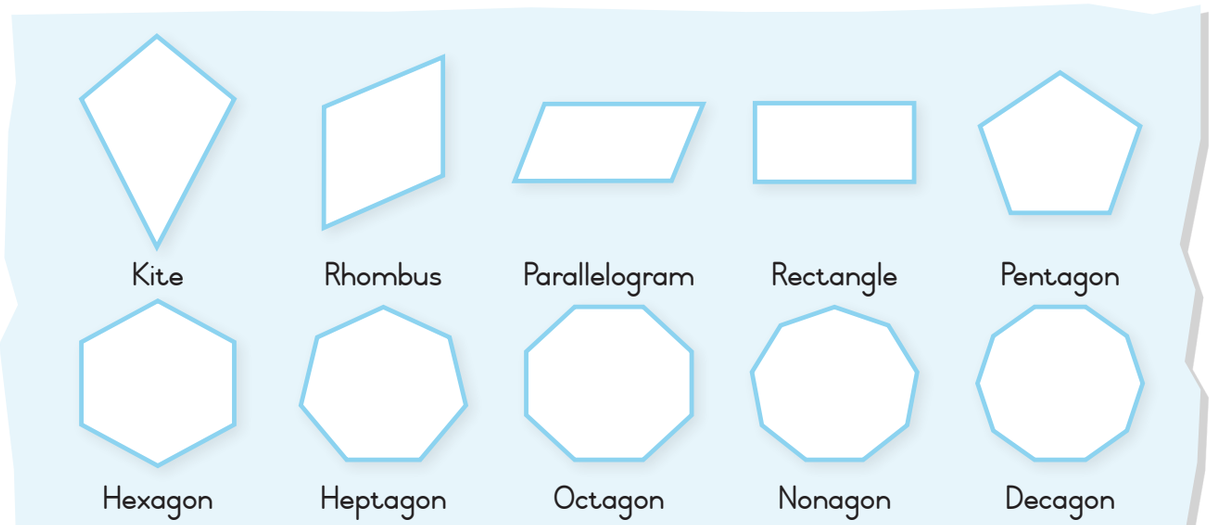


Figure 79 Range of 2-D shapes

Symmetry

Learners can notice symmetrical patterns all around them, in nature, in buildings, in paintings and objects. In the early years, **symmetry** is easiest understood as 'reflection' or 'mirroring'. Learners can explore this concept by folding and cutting shapes and pictures in half, or by drawing a picture on one half of a piece of paper using wax crayons, then folding the paper and rubbing the area behind their drawing and seeing the exact copy of what they have drawn reproduced on the other half of the page.

GLOSSARY

symmetry
when a shape or object can be divided into two equal halves along a central line

Symmetrical patterns can be found on our bodies, in nature, in the built environment and in pictures. Line symmetry divides the shape into two identical parts. The line can be horizontal or vertical.

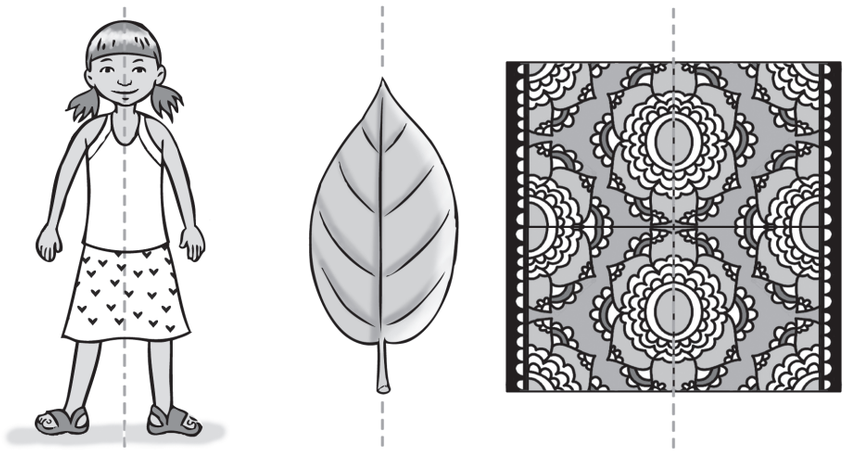
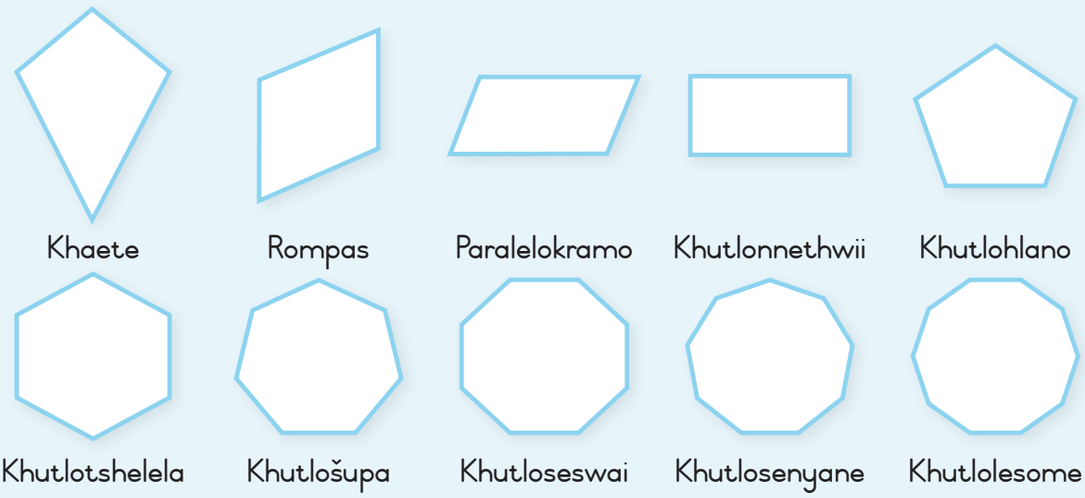


Figure 80 Line symmetry divides the shape into two identical parts.

In Grade R, learners explore symmetry by comparing objects and pictures. They learn that symmetry is not about being 'the same as', but rather about being identical, for example, a butterfly is symmetrical, but a hand is not.



Seswantšho sa 79 Dibopego tša go fapana tša 2-D

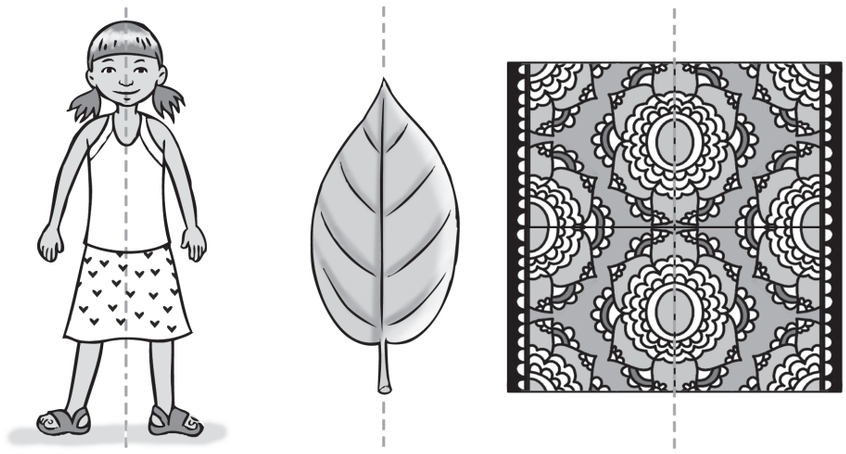
Lekanela

Barutwana ba tla lemoga dipaterone tšeo di lekanelago, tša dilo tša hlago, meago, dithalwa le dilo tše dingwe. Go kwesiša go **lekanela** bana ba swanetše go kwešisa 'moriti' goba 'seipone'. Barutwana ba ka ithuta go lekanetša ka go phutha letlakala/pampiri le go sega letlakala ka bogare, goba ka go thala seswantšho ka phensele ya makhura seripeng se tee sa letlakala morago ba phutha letlakala ka bogare ba forohla seswantšho gomme ba bona seo ba se thadilego se tšwelela seripeng se sengwe sa letlakala.

Sebopego sa tekanyetšo se hwetšwa mebeleng ya rena dilong tša hlago, tikologong le diswantšhong. Mothaladi wo o arolago dilo ka diripa tše pedi tša go swana goba go lekanela. Mothaladi o ka putla goba wa selaganya/rapama.

TLHALOŠANTŠU

lekanela
ge sebopego goba selo se arolwa ke mothaladi gare gomme sa tšwa diripa tše pedi tša go lekana



Seswantšho sa 80 Mothalo wa go lekanetša o arola dibopego ka diripa tše pedi tša go lekana.

Mphatong wa R, barutwana ba ithuta go lekanela ka go swantšha le go bapetša dilo le diswantšho. Ba ithuta gore go lekanela 'ga se go swana', go fa mohlala, serurubele se a lekanetša efela seatla sa motho ga le lekane.

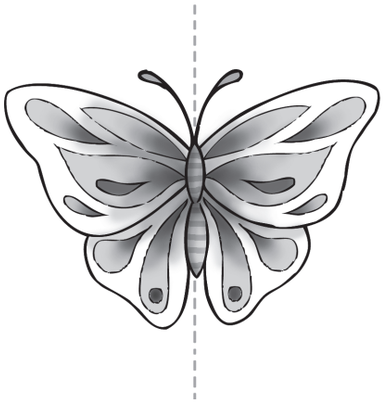


Figure 81 Symmetrical

Figure 82 Not symmetrical

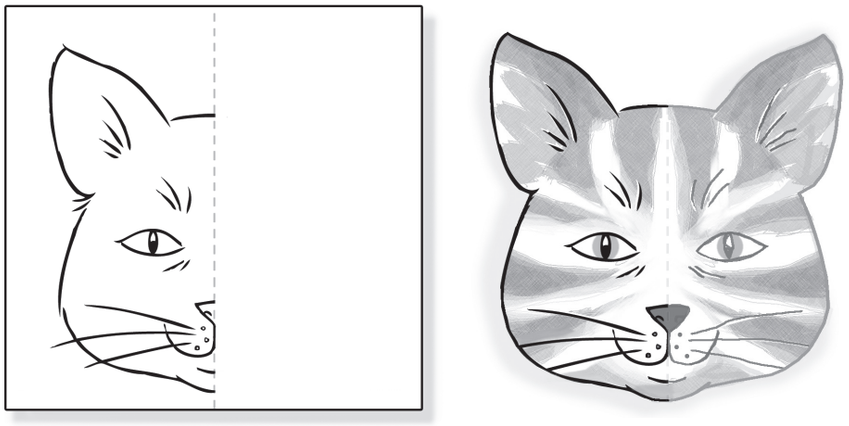
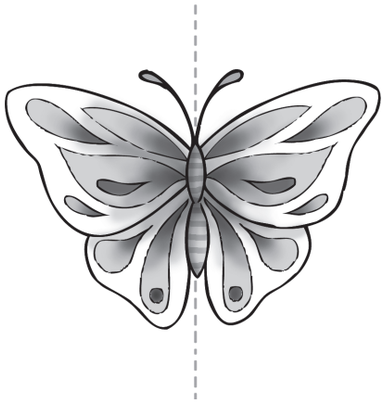


Figure 83 Folded piece of paper with image cut out and copied opposite to show symmetry.

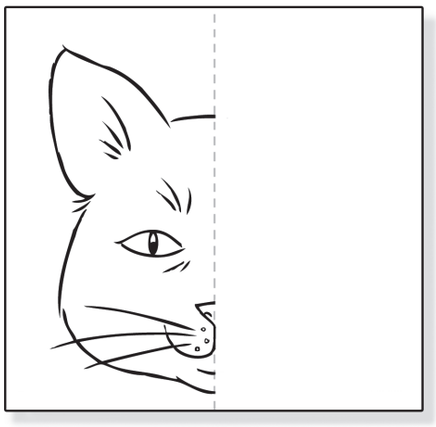
Questions to ask for Space and Shape (Geometry)

- Where are you standing?
- What is in front of/behind you?
- Can you tell me how to get from … to …?
- Can you show me how to move around the box, over the chair and under the table?
- What shape is this?
- How do you know it is a triangle/square/rectangle/circle?
- How many sides does this shape have?
- How many corners/points does this shape have?
- What can you tell me about the sides of this shape?
- What can you tell me about the line?
- What is the same/different about these two shapes?
- Why do they belong together?



Seswantšho sa 81 Tekanyetšo

Seswantšho sa 82 Ga di a lekane



Seswantšho sa 83 Matlakala a go ba le diswantšho ao a phuthilwego goba a segilwego go bontšha go lekanela.

Dipotšišo ka Sekgoba le Sebopego (Tšeometri)

- O eme kae?
- Go na le eng ka pele/morago ga gago?
- Mpotše go re ke sepela bjang go tloga … go ya …?
- O ka ntaetša gore ke sepela bjang go dikologa lepokisi, godimo ga setulo le ka tlase ga tafola?
- Ke sebopego sefe se?
- O tseba bjang gore ke khutlotharo/khutlonne/khutlonnethwii/sediko?
- Sebopego se se na le mahlakore a makae?
- Ke dikhutlo tše kae?
- O ka mpotša eng ka mahlakore a sebopego se?
- O ka mpotša eng ka mothaladi?
- Go swana/fapana eng ka dibopego tše?
- Di sepelelana bjang?

- Can you see anything in the classroom that looks like this shape?
- What would happen if I flipped this shape? What would happen if I turned this shape around?
- Can you use these shapes to make a model of that picture?
- Which of these objects can roll/slide?
- Can you put these objects on top of each other?
- Can these shapes fit together?
- Can you find an object with flat sides?
- Can you find an object with curved sides?
- How many edges/corners/points does the box have?
- What is the same/different about these two boxes?

Vocabulary for Space and Shape (Geometry)

Position and direction

- in, on, off, on top of, over, under, out, into, out of, top, bottom, above, below, between, in front of, behind, next to, upside down
- near, far, beside, side, inside, outside
- close, closer
- far, further
- near
- straight, turn
- around, along, through
- to, from, towards, away from
- opposite
- forward, backwards, sideways
- left, right

2-D shapes

- circle, square, rectangle, triangle
- line, side, edge, corner, point, sharp
- curved, straight

3-D objects

- block, box, bottom, top, sides, flat
- lines, straight, edge
- corner, sharp, point
- ball, round, curved

Symmetry

- same as
- left, right
- top, bottom

- A o kgona go bona sebopego seo se swanago le a ka phapošeng?
- Go tla direga eng ge re ka phethola sebopego? Go tla direga eng ge re ka fetola sebopego?
- O ka kgona go bona le go ekiša sebopego seo se lego seswantšhong?
- Ke dife tša dilo tše di ka kgokologago/thelelago?
- O ka bea dilo tše godimo ga tše sengwe?
- Dibopego tše di ka nyalelana?
- O ka hwetša selo sa mahlakore a phaphathi?
- O ka hwetša selo sa mahlakore a go kgopama?
- Lepokisi le le na le dintlha/tše kae?
- Mapokisana a mabedi a aswana/fapana ka eng?

Tlotlontšu ya Sekgoba le Sebopego (Tšeometri)

Seemo le ditšhupetšo

- ka gare, godimo, tšwa, godimo ga, ka godimo ga, ka ntle, ka ntle ga, ka tlase, fase, gare ga, ka pele ga, ka morago, kgaufsi le, ka fase ka godimo
- kgaufsi, kgole, mabapi, lehlakore, ka gare, ka ntle
- kgaufsi, kgaufsiufsi
- kgole, kgolekgole
- kgaufsi
- otlologa, dikologa
- rarela, bapile, ka
- go, tšwa, mo go, go tloga go
- latola/fapanego
- pele, morago, ka thoko ga tsela
- la nngele, la go ja

Dibopego tša 2-D

- sediko, khutlonne, khuthonnethwii, khutlotharo
- mothaladi, lehlakore, ntlha, sekhutlo, bogale
- nyokanyoka, otlologa

Dilo tša 3-D

- poloko, lepokisi, ka tlase, ka godimo, mahlakore, phaphathi
- methaladi, otlologa, phethela
- sekhutlo, ntlha
- kgwele, sediko, nyokanyoka

Lekanela

- lekana
- la nngele, la go ja
- godimo, fase

Measurement

Children are involved in **measurement** when they play and explore in their everyday lives. They come to Grade R with their own ideas of measurement, for example, that an adult is 'big', that something is too high to reach, that they need many things to fill a box, that it takes a long time to walk to the shop. They will compare which of two sweets is the biggest, which is the tallest block tower or which of two boxes is the heaviest. Conceptual understanding of different kinds of measures develops gradually and grows out of children's practical, day-to-day experiences and conversations with adults and friends, when, for example, they might take the biggest piece of bread or compare height or find out who has the smallest foot or who has made the tallest tower. They make decisions about which of two toy cars will fit into a garage and how many blocks they would need to make the garage bigger or smaller. They may measure out ingredients for cooking, pouring water or sand from a jug to see how many cups can be filled, or compare how heavy a bag of sugar and a box of oranges is.

GLOSSARY

measurement
'how much' of something, e.g. height, length, mass, volume, capacity

Measurements and the units we use to measure are about finding 'how much' there is of a particular thing. Measurement links with other maths areas, such as numbers, patterns, shape and data. Learners count how many units are needed to measure physical quantities, such as height, capacity, volume, length, weight, or non-physical quantities, such as time, money or temperature. They may estimate which of something is 'more' or 'less', for example, the scoops of ice cream in a bowl. They will base their estimation on the amount of space the ice cream takes up, not on the weight of the bowls or the number of scoops.

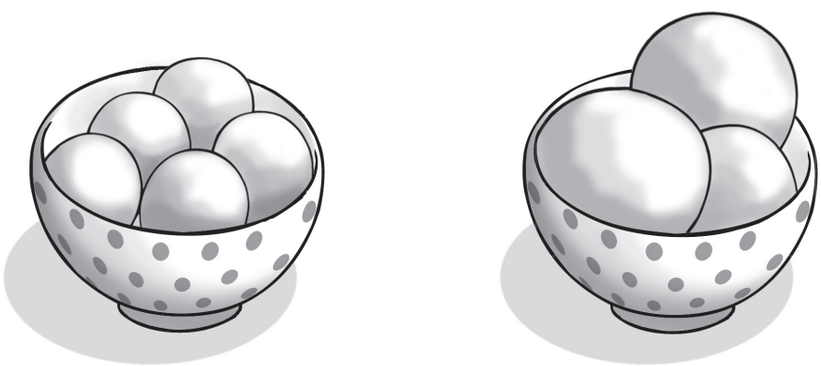


Figure 84 Estimating the amount of ice cream

In Grade R, measurement is practical and learners should do many hands-on activities that are meaningful to them. To understand measurement concepts, for example, how 'heavy' something is, learners need to pick up objects and compare their weight. Measurement is about determining the size or amount of one thing by comparing it with a non-standard unit, such as hands, feet, a pencil or a piece of string, or a standard unit of measurement, such as a centimetre or litre.

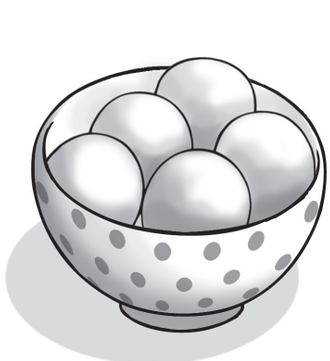
Kelo

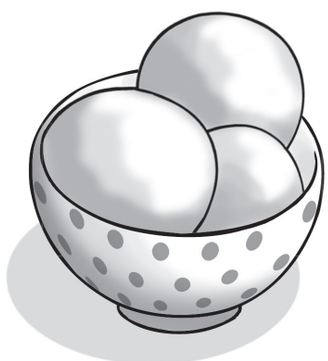
Bana ba kgatha tema ka go **ela** dilo ka mehla mo bophelong ge ba bapala. Ba tla ka go Mphato wa R ba na le dikgopolo tša bona ka go ela. Go fa mohlala, motho yo 'mogolo', selo se sengwe se godimo go se fihlelela, go nyakega tše ntši go tlatša lepokisi, go tšea sebaka se se telele go ya sekolong goba lebenkeleng. Ge ba bapetša malekere a mabedi ke lefe le legolo goba ke lepokisi lefe la boima. Go kwešiša mekgwa ye e fapanego ya kelo go direga mešomong yeo ba e dirago tšatši ka tšatši le ge ba bolela le bagwera goba batho ba bagolo, go fa mohlala, ge ba bapetša dilayi tša borotho goba botelele bja maoto a bona goba meago. Ba tšea dipheto ka dikoloi tša go bapadišwa, ke efe yeo e ka lekanago ka karatšheng le go re go nyakega dipoloko dife go oketša karatšhe gore e be e kgolwane. Ba kala dilo ge ba apea, ba tšhela meetse goba santa ka mapotlelong. Go nyakega santa e kaakang go tlatša sekotlelo, bapetša gore ke eng ya boima gare ga mokotla wa swikiri goba mokotla wa dinamune.

TLHALOŠANTŠU

kelo (ela)
selo ke 'se se kaakang', mohl. bogodimo, botelele, boima, bontši, kelo

Kelo le diuniti/metšo tšeo re di šomišago go ela di thuša go hwetša gore dilo 'ke tše kae/ke bokae'. Kelo e tswalana le dikarolothuto tše dingwe tša thuto ya dipalo bjalo ka dinomoro, dipaterone le tshedimošo. Barutwana ba bala gore ke dilo tše kae tšeo di nyakegago go kala botelele, boima, bophara le tše dingwe bjalo ka nako le thephereitšha. Ba ka akanya gore ke eng tšeo e lego tše 'ntši' goba tše 'mmalwa', mohlala go nyakega mahwana a makae a lebebetšididi (aesekhirimi) go tlatša sebjana. Dikakanyo tša bona di tla dirwa ka go nagana gore go na le sekgoba se se kaakang ka sekotlelong e sego ka boima bja sebjana goba palo ya mahwana ao a tšhetšwego.





Seswantšho sa 84 Akanya kelo ya lebebetšididi (aesekhirimi)

Mphatong wa R kelo e swanetše go direga ka mehla ka mešomo yeo e nago le mohola go barutwana. Go kwešiša go ela, go fa mohlala, gore selo se 'boima' ga kaakang, barutwana ba swanetše go kuka dilo gomme ba bapetše boima bja tšona. Kelo e laolwa ke saese le boleng bja dilo tšeo di bapatšwago bjalo ka diatla, maoto, phensele, thatana goba disentimetara goba di litara.

Teachers need to observe learners during the activities and talk with them about their ideas. Teachers can introduce new vocabulary while learners are comparing, for example, how long things are. When learners talk about something being 'big' or 'small' the teacher can model the use of the correct vocabulary by rephrasing their words. For example, when a learner says that someone is big or small teachers should encourage them to say what it is about the person that makes them big or small. Is it the height or the width or the weight of the person?

Figure 85 Using maths vocabulary

Once learners have decided what they want to measure (the attribute) they need to decide how they will measure a particular attribute, such as height.

Figure 86 Using hands to measure height

In this way, learners will begin to understand 'big' things aren't just large objects, and that they can look at them in terms of their length, height or weight.

Morutiši o swanetše go bolela le barutwana go humana dikgopolo tša bona ka nako yeo ba dirago mešomo. Morutiši a ka ba ruta tlotlontšu ye mpsha mola ba bapetša, go fa mohlala, botelele bja dilo. Ge barutwana ba bolela ka dilo go re ke 'tše nnyane' goba ke 'tše kgolo morutiši' a ka ba botša tlotlontšu ya maleba. Go fa mohlala, ge barutwana ba bolela gore dilo ke tše kgolo le tše nnyane morutiši a ka ba botšiša gore ke eng selo seo se dirago gore motho yo e be yo mogolo. E ka ba ka botelele goba ka bokoto?

Seswantšho sa 85 Go šomiša tlotlontšu ya thuto ya dipalo

Ge barutwana ba tšeere sephetho ka seo ba ratago go se kala/ela ba swanetše ke go tšea gape sephetho sa gore selo seo ba ile go se kala/ela bjang, mohlala, boima goba botelele.

Seswantšho sa 86 Šomiša matsogo go kala botelele

Ka mokgwa wo, barutwana ba tla thoma go kwešiša phapano magareng ga dilo tše di 'kgolo' le tše di telele gomme ba tla thoma go di bona ka botelele, bogolo le boima.

In practice ...

Learners also add or subtract when they solve measurement problems that involve number, for example, when they:

- compare amounts when pouring water or sand into different containers, they will realise they need 2 cups to fill a jug
- work out how many objects to place on either side of a balance scale to make the sides balance, they will realise that they need one more or fewer and count the total number
- construct block towers and add, subtract and count the number of blocks to make a tower taller or shorter.

Developing the concept of measurement

Learners should have plenty of opportunities to solve problems involving measurement and should have a range of appropriate containers that they can use in informal activities to investigate and find solutions for themselves. Learners need hands-on activities that involve comparisons by picking up, pouring, touching and talking about what they experience.

Figure 87 Containers for measurement activities

Different ways of measuring

Direct comparison

The focus of measurement is on comparing the attribute of something 'directly'. For example, measuring the length of a pencil against another pencil or comparing the height of two learners standing back to back.

Go ikatiša ...

Barutwana ba a hlakantšha le go ntšha ge ba kala dilo tša dinomoro, go fa mohlala ge ba:

- tšhela meetse goba lešabašaba ka gare ga sekotlelo, ba lemoga gore go nyakega komiki tše pedi go tlatša lepotlelo/pakete/sekotlelo/kgamelo
- gopola gore go nyakega tše kae sekaleng gore go be le go lekanela, ba lemoga gore go nyakega tše ntši goba tše mmalwa gomme ba bala palomoka
- aga ka dipoloko go hlakantšha, go ntšha le go bala palomoka ya dipoloko go dira e telele goba e kopana.

Ntšhetsopele ya kelo

Barutwana ba swanetše go hwetša sebaka sa go rarolla dipalo tša kelo/go ela. Ba swanetše go humana dilo tša go fapana e ka ba dikotlelo, mapotlelo moo ba tla kgonago go nyakišiša le go humana dikarabo ka bobona. Barutwana ba nyaka mešomo yeo e ba thušago gore ba bapetše ka go topa, go tšhela go kgoma ebile ba humane le sebaka sa go bolela ka maitemogelo a bona.

Seswantšho sa 87 Didibelo tša go dirišwa mešongwaneg ya kelo

Mekgwa ya go fapana ya go ela

Papetšothwii

'Nepišo' ya go kala/ela ke go bapetša dilo. Go fa mohlala, go lekanya botelele bja dilo goba go bapetša botele bja barutwana ka go ba bea kgaufsi le kgaufsi ba kgomane ka mekokotlo (ba furalelane).

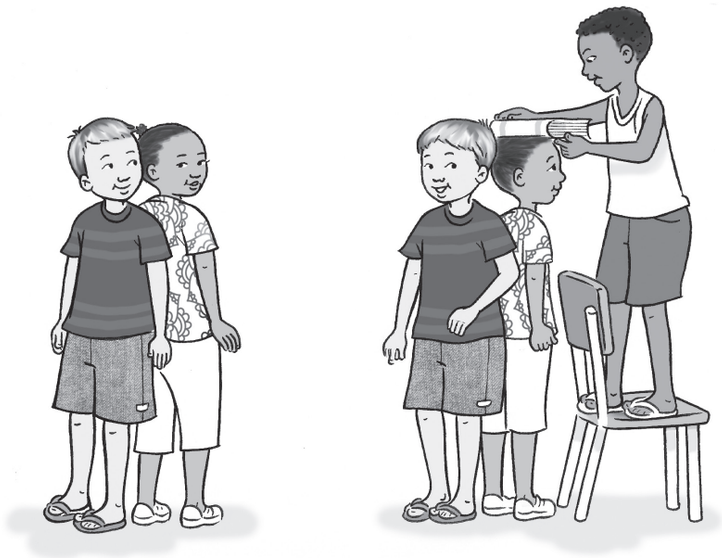


Figure 88 Comparing the height of two learners

'Max is taller than Lola.'
'How much taller is he?'

Comparisons can also involve ordering:
'Max is taller than Lola, but shorter than Elton.'

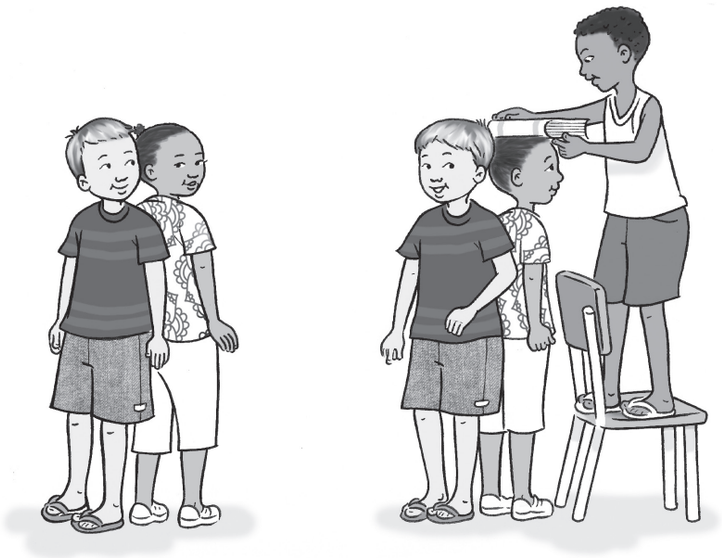
Figure 89 Tallest to shortest

Informal measuring

We measure informally, using **non-standard units** to measure, for example, when we use an arm's length to measure a piece of string, or use our feet to measure the size of a carpet.

GLOSSARY

non-standard unit
a unit of measurement that uses an object, such as a shoe, paper clip or cube; it can also be an informal item, such as a hand span, foot or body length



Seswantšho sa 88 Bapetša botelele bja barutwana ba babedi

‘Max ke yo motelele go Lola.’
‘Ke yo motelele ga kaakang?’

Go bapetša go tswalana le go beakanya:
‘Max ke yo motelele go Lola efela o fetwa ke Elton.’

Seswantšho sa 89 Telele go iša go nnyane/kopana

Kelo ya ka mehla

Bjalo ka batho re šomiša **metšo ya go se tlwaelege** go kala goba go lekanya dilo, go fa mohlala, re šomiša matsogo go lekanya thapo goba lešela goba maoto a rena go lekanya mmete goba sekgoba.

TLHALOŠANTŠU

metšo ya go se tlwaelege
mokgwa wa go lekanyetša dilo bjalo ka go šomiša seeta, letlakala goba poloko e ka ba seatla, leoto goba mmele

Standard measuring unit

We use standard units, such as millilitres, litres, centimetres, metres, grams, kilograms, minutes and hours to compare the length of something, how heavy something is or how long it takes to do something. We use standard units to measure more accurately.

Estimation

Learners need to develop estimation skills during their informal measurement activities, for example, they should estimate how heavy they think something is before measuring, or how long they think something is based on the number of blocks they think they will need to measure it, or how long they think it will take to finish tidying up the classroom. They then use measuring instruments to find out how accurate their estimation was.

In practice ...

Learners begin to understand what measurement means and why we need to measure. They understand that:

- Measurement involves direct comparison and the use of non-standard units, such as hands and feet, and other units that are exactly the same size or length, such as blocks, string, counting straws.
- Each unit is a different size; they realise that each measure produces a different result.
- We use one standard unit to measure so that we all have the same outcome when comparing an attribute.

Learners need plenty of opportunities to make decisions themselves about what to measure and how to measure. They should compare the results of their measurements and use different units to measure the same objects.

In higher grades, when learners have acquired comparison and estimation skills, they begin to use standard units. Some Grade R learners may be exposed to measuring tools at home and these can be discussed informally at school, for example:

- measuring jugs, measuring spoons – to measure millilitres, litres
- rulers, tape measures – to measure centimetres, metres
- scales – to measure grams, kilograms
- watches and clocks – to measure minutes, hours.

Diuniti/Metšo ya go tlwaelega ya go kala/ela

Ge re lekanya goba re ela re šomiša metšo/diuniti bjalo ka dimilimitara, dilitara, sentimetara, metara, gramo, dikilogramo le metsotso le diiri go bapetša botelele, bontši, boima le nako. Re šomiša diuniti/metšo ye go lekanetša ka go nepagala.

Lekanyetša/Akanya

Barutwana ba swanetše go ithuta go akanya ka nako ya mešomo ya go se be ya semmušo, go fa mohlala, ba swanetše go akanya gore selo se boima ga kaakang pele ba se kala, goba selo ke se se kaakang go ya ka palo ya dipoloko tšeo di nyakegago goba go tla tšea nako ye kaakang go hlwekiša phapoši. Morago ba šomiša didirišwa tša go ela go bona gore dikakanyo tša bona ke tšona na.

Go ikatiša ...

Barutwana ba thoma go kwešiša go lekanya le gore ke ka lebaka la eng go lekanywa. Ba kwešiša go:

- Lekanya le go hlakanya dilo ka go šomiša diatla le maoto le go lekanyetša dilo tše dingwe bjalo ka dipoloko, dithapo goba mathopo a go lekanya.
- Dilo di na le disaese tša go fapana; barutwana ba tla lemoga gore go ela go tliša dipoelo tša go fapana.
- Go šomišwa mokgwa o tee goba wa go ela goba go lekanyetša ge go nyakega go humana dipoelo tša go swana.

Barutwana ba swanetše go humana monyetla wa go dira sephetho ka seo ba nyakago go se lekanyetša/ela le mokgwa wa go lekanyetša/ela. Ba swanetše go bapetša dipoelo tša tekanyetšo go latela mekgwa ya go fapana ya go lekanyetša/ela.

Mphatong ya godimo, mola barutwana ba ithutilego ebile ba kwešiša go bapetša le go akanya ba thoma go šomiša mekgwa ya maleba ya go lekanya. Barutwana ba bangwe ba tla Mphatong wa R ba tseba mekgwa ya go kala/ela, go fa mohlala, ba tseba:

- senwelo sa go ela, lelepola la go kala – go kala dimililitara, litara
- rula, theipi ya go lekanyetša – go lekanyetša di sentimetara, mitara
- sekala – go kala digrama, dikilograma
- dišupanako – go lekanyetša metsotso, diiri.

Time

The practical aspects of measurement – distance, capacity, weight – can be presented to learners through familiar activities and events, but time is a difficult abstract concept for learners to understand. This is partly because adults do not always use the language of time accurately, and use everyday expressions like, 'I will be there in a minute,' but then take much longer than that. Also, young children tend to live 'in the moment' and therefore recalling past events in order or predicting future events is more difficult for them. Learners need to understand how time passes in their own lives, so teachers need to relate time to the learners' daily experiences and events that are familiar to them.

- Sequencing events: Learners need to understand the language of time so that they can talk about the order in which a sequence of events occurs. Use the daily routine and stories to talk about the order of events during the day and the sequence of actions to complete a task – 'what happened next/before/after'.
- Units of time: Compare different units of time: school time is in the morning, home time is in the afternoon, bedtime is at night, two 'sleeps' until your birthday. Make a weather chart, keep a monthly calendar and record important events on a pictorial timetable. Talk about 'yesterday, today, tomorrow'. Gradually learners begin to understand how time builds into days of the week, months of the year and seasons.
- Rates of speed: Run and race outside. Use plastic guttering to make tracks to roll marbles along and ramps to push cars up and down. Dance to slow and fast music. Ask learners how long it takes them to brush their teeth or walk around the school. Talk about fast, quick and slow movements and activities.

Length

In Grade R, the focus is on estimating, measuring, comparing and ordering length and distance. Learners need to understand that in order to find out the length of something they need to measure it from one end to the other end. For example, they can measure and compare the length of a pencil using paper clips as non-standard units. The illustration below shows how the same pencil can be measured using two different units of measurement. In the first picture there are five paper clips and in the second picture there are three larger paper clips.

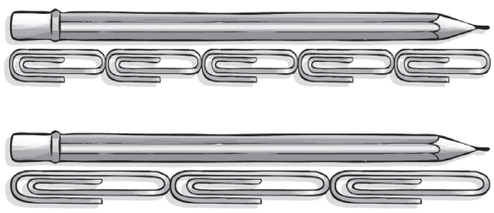


Figure 90 Measuring length with two different units of measurement

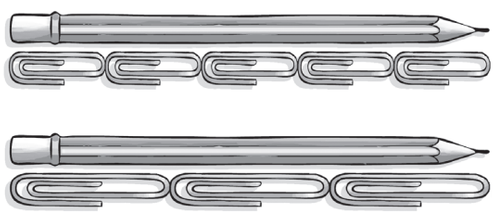
Nako

Mokgwa wa go ikatiša ka go lekanyetša – bokgole, kelo, boima – di ka rutwa barutwana ka go ba fa mešongwana le medirwana ye e itšego, efela nako ke lereo le lengwe la go se swarege leo go lego boima go barutwana go le kwešiša. Se e ka ba gore gantši rena batho ba bagolo ga re šomiše tlotlontšu ya nako ka mokgwa wa maleba, go fa mohlala, 'ke tla fihla ka morago ga motsotso,' efela ra fihla ka morago ga nako e telele morago ga fao. Se sengwe ke gore bana ba phela 'lebakeng la bjale' ka fao go boima go bona go gopola dilo tše di fetilego le go akanya tšeo di tlago. Barutwana ba swanetše go kwešiša gore nako e sepela bjang, morutiši o swanetše go ba bontšha se ka tšeo di diregago maphelong a bona.

- Tatelano ya ditiragalo: Barutwana ba swanetše go kwešiša nako gore ba tle ba tsebe tatelano ya ditiragalo. Šomiša mešomo ya ka mehla le dikanegelo go bolela ka tatelano ya ditirago. O ka šomiša gape le tatelano ya ditiro go fetša mošomo – 'go diragetše eng pele/mo gare/ mafelelong'.
- Diuniti/Metšo ya nako: Bapetša nako: nako ya sekolo mesong, nako ya go bapala gae mosegare. Nako ya go robala bošego, 'mašego' a mabedi pele ga letšatši la matswalo. O ka dira tšhate ya seemo sa boso goba wa dira khalentara ya kgwedi gomme wa rekhota ditiragalo tša bohlokwa ka diswantšho. Bolela ka 'maabane, lehono le gosasa'. Ga nnyane ga nnyane barutwana ba thoma go lemoga tatelano ya nako e bopa matšatši a beke, dikgwedi tša ngwaga le ditlha.
- Tekanyo ya lebelo: Go kitima le go šiana ka ntle. Šomiša dipolasetiki go dira tsela ya dimabolo goba mmoto wa go kgorameletša dikoloi fase le godimo. Barutwana ba ka binela mmino wa go nanya goba wa lebelo. Botšiša barutwana gore na ba tšea nako ye kaakang go hlapa meno goba ba tšea nako e kaakang go tla sekolong. Bolela ka lebelo, ka go phakiša le ka go nanya ge o ba fa ditaelo.

Botelele

Mphatong wa R, nepo ke go ba ruta go akanya, go bapetša, botelele le bokgole. Barutwana ba swanetše gore ba kwešiše gore go tseba botele bja selo o swanetše go se lekanyetša go tloga mathomomg go fihla mafelelong. Go fa mohlala, ba ka lekanya botelele bja phensele ntle le go šomiša mekgwa ya go lekanyetša. Seswantšho sa ka tlase se bontšha mekgwa e mebedi ya go lekanyetša phensele. Seswanšhong sa mathomo diswarapampiri tše nnyane tše tharo di šomišitšwe mola go se sengwe go šomišitšwe tše tharo tše kgolo.



Seswantšho sa 90 Mekgwa ya go lekanetša botelele ka diyuniti tše pedi tsa kelo

Learners can also measure from top to bottom to find the length of something, for example, to find out how tall the learners in the class are. Then you can arrange them in order from the tallest to the shortest.

- Direct comparison: Find things that are longer than/shorter than … Sort objects according to length and height. Talk about and describe why the objects are sorted in a particular way.
- Attributes: Talk about the length, height or width that is to be measured.
- Non-standard units: Use hands, leaves, pencils to measure and compare objects.
- Uniform non-standard units: Use the same size unit, for example, blocks. Place these along the whole length of the object being measured. Later use one block and move it along, counting the number of moves.

Mass

In Grade R the focus is on estimating, weighing, comparing and ordering objects according to how heavy or light they are. It takes time for learners to understand the concept that size and mass (or weight) are different. Learners need to explore small heavy objects, small light objects, big heavy objects and big light objects and make comparisons between them. Teachers should help learners focus on how heavy the object is, not on its size.

- Direct comparison: Hold an object and estimate its **mass**. Find things that are heavier or lighter than the object.
- Attributes: Talk about the shape, size and mass of the object being measured.
- Non-standard units: Use a balance scale to compare the mass of objects. Place an object to be weighed on one side of the scale. Add another (or more than one) object on the other side of the scale to make it level.
- Uniform non-standard units: Use the same size unit, for example, a large block or a book to compare the mass of objects using the balance scale.

GLOSSARY

mass
how heavy something is

Capacity

The **capacity** of an object is how much it can hold, for example, a one-litre milk bottle can hold one litre of liquid. In Grade R, the focus is on estimating, measuring, comparing and ordering containers according to how much they can hold. Teachers need to provide many opportunities for learners to use the concepts of empty and full, for example, when they are filling or emptying containers with water or sand and during snack time. Learners can fill containers with different substances and talk about their capacity: 'How many cups of water do we need to fill this jug? Why do we need fewer milk bottles of water to fill the jug?'

GLOSSARY

capacity
the maximum or greatest amount that something (such as a bucket or a box, or a stadium) can hold

Barutwana ba ka lekanetša selo go tloga godimo go ya fase, mohl. go hwetša go re barutwana ke ba batelele bokaakang. Ka fao o ka ba beakanya ka yo mo telele go fihla ka yo mo kopana.

- Go bapetša thwii: Hwetša dilo tšeo e lego tše di telele/kopana go … Hlaola dilo go ya ka botele le bogodimo. Bolelang gore gobaneng le di hlaotše ka tsela yeo.
- Go farologanya: Bolelang ka botele, boima le bophara.
- Go lekanya metšo ya go se tlwaelege: Šomiša diatla, matlakala, diphensele le go lekanyetša le go bapetša le go lekanetša dilo.
- Go lekanyetša ka diuniti/metšo: Šomiša diuniti/metšo ya go lekana, mohlala, dipoloko. Bea dilo tšeo o di elago/lekanyago kgaufsi le kgaufsi. Ka morago šomiša poloko e tee, o e sepetše gomme o bale palo ya mesepelo yeo.

Boima

Mphatong wa R nepo ke go ruta go akanya, boima, bapetša le go beakanya dilo go ya ka gore e boima goba e bofefo ga kaakang. Go tše nako gore barutwana ba kwešiše diphapano magareng ga saese le boima. Barutwana ba swanetše go ithuta ka go kuka dilo tša go se be boima tše dinnyane le tša boima tše nnyane le tša go se be boima tše dikgolo le tša boima tše dikgolo. Thutong ye ba rutwa boima e sego saese.

- Go bapetša: Swara selo o akanye **boima**. Hwetša dilo tšeo di lego boima goba tšeo di sego boima ge go bapetšwa le seo o se sweregó.
- Go farologanya: Bolelang ka sebopego, seelo le boima bja selo se se bego se etšwa kelo.
- Go lekanyetša diuniti/metšo ya go setlwaelege: Šomiša sekala go lekanyetša boima bja dilo. Bea dilo lehlakoreng le tee la sekala. Bea tše dingwe ka lehlakoreng le lengwe (o ka oketša ka e tee e tee) go fihla di lekanela.
- Go lekanyetša diuniti/metšo: Šomiša diuniti/metšo ya go lekana, go fa mohlala, poloko goba puku o bapetše boima bja tšona sekaleng.

TLHALOŠANTŠU

boima
selo se boima ga kaakang

Motano

Motano wa selo o bolela gore selo seo se ka swara dilo tše di kaakang, go fa mohlala, lepotlelo le ka swara lithara e tee ya seela. Mphatong wa R, nepo ke go ruta go akanya, boima, go bapetša le go beakanya dilo ka dikotlelong go latela botebo bja tšona. Barutwana ba swanetše go humana sebaka sa go ithuta ka go tlatša le go hloka selo, mohl. ge ba tlatša sekotlelo ka santa goba meetse. Barutwana ba ka tlatša sekotlelo ka dilo tša go fapana go bona motano wa sona. Ba ka bolela ka mothamo: ‘Senwelo se tlatšwa ke dikomiki tše kae? Gobaneng re nyaka mapotlelo a mmalwa go tlatša senwelo?’

TLHALOŠANTŠU

motano
bontši bja dilo tšeo di ka tlatšago selo (pakete, lepokisi goba lepatlelo)

- Direct comparison: Fill, empty and pour between similar containers using water or sand to find out if they hold the same amount. Initially, learners are likely to estimate that the taller of two containers will hold more water.
- Non-standard units: Experiment with how much water or sand different containers can hold. Compare which holds 'more' or 'less'. Fill one container and then pour the water or sand into another to see if it overflows or if there is room left for more to be added. Fill tall and wide containers and put them in order from the one that holds the most to the one that holds the least.
- Uniform non-standard units: Count the number of spoons or cups that fill containers of the same and different sizes.

Volume

Volume is about how much of something an object is holding, such as water, sand, rice or sugar. In Grade R, the focus of measuring should be on how much a container can hold (capacity) rather than the amount of space a container takes up (volume). Volume can change according to the amount of contents at any given time, but capacity is always the same, for example, the capacity of the jug is 1 litre regardless of how much it contains at the moment. This is a difficult concept for learners in Grade R to grasp.

GLOSSARY

volume
the amount something is holding or the space the contents take up

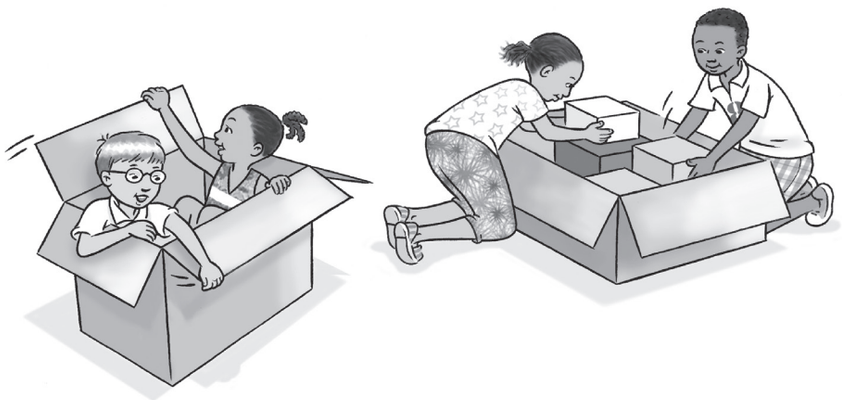


Figure 91 Exploring capacity and volume

- Direct comparison: Learners experiment with different-shaped containers to find out how big the container is and how much they think it could hold.
- Non-standard units: Float containers like plastic lunchboxes, plastic peanut butter jars, milk jugs in water. Fill them with counters or sand and discuss what happens. Ask questions such as: 'Do they still float? What happens to the water in the bucket? Does it spill over?'

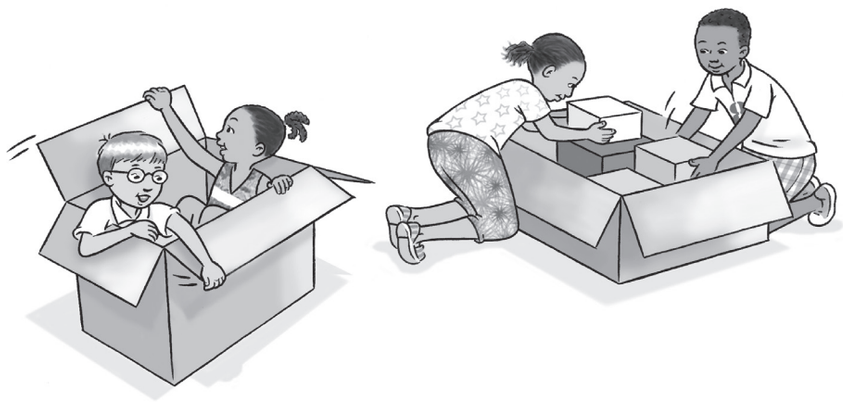
- Bapetša: Tlatša, tšholla goba tšhela meetse goba santa ka gare ga dikotlelo go bona gore di swara tša go lekana na. Ge le thoma thuto ye barutwana ba tla gopola gore se setelele se swara tše ntši.
- Go farologanya: Utollang gore sekotlelo sefe se swara tše di kaakang. Bapetša gore e swara 'tše ntši' goba 'tše nnyane'. Tlatša sekotlelo se se tee gomme ka go se sengwe o tšhele meetse goba santa o bone gore na o ka kgona go tšhela a mangwe ntle le go tšholla. Tlatša sekotlelo se setelele le sa sephara (sa go bulega). Le bona gore ke sefe seo se swarago tše ntši le gore ke sefe seo se swarago tše nnyane.
- Diuniti/metšo ya go se tlwaelege: Bala palo ya mahwana le dikomiki gomme o tlatše dikotlelo tša go lekana le tša go fapana.

Bolumu

Bolumu e bolela gore selo se kgona go swara dilo tše di kaakang, bjalo ka meetse, santa, raese goba swikiri. Mphatong wa R, nepo ke go ba ruta gore sekotlelo se swara dilo tše di kaakang (boteng) esego gore sekotlelo se tšea sekgoba se se kaakang (bolumu). Bolumu e ka fetoga le ge seo se tšhelwago ka gare se ka fetoga, mohl. boteng ke litara go sa kgathalege gore go na le meetse a go fihla kotara goba seripa sa litara. Se se tla tšea nako gore barutwana Mphatong wa R ba se kwešiše.

TLHALOŠANTŠU

bolumu
phapano magareng ga boteng bja selo le seo se lego ka gare



Seswantšho sa 91 Kutollo ya motano le bolumu

- Bapetša: Barutwana ba ithuta ka go šomiša dikotlelo tša dibopego tša go fapana go bona gore ke efe yeo e swarago dilo tše ntši.
- Diuniti/Metšo ya go se tlwaelege: Ka meetseng, phaphamatša dikotlelo tšeo di kgonago go phaphamala bjalo ka dikotlelo tša go tšhela dijo le mapotlelo a polastiki. Di tlatše ka dibaledi goba santa goba meetse le bone gore go tla direga eng. Ba botšiše dipotšišo bjalo ka: 'Di sa phaphametše? Go direga eng ka meetse ka paketeng? A tšhologa?'

Questions to ask for Measurement

- What did you do when you woke up?
- What did you do next?
- What happened after that?
- What did we do before …?
- What will we do after …?
- Which moves the fastest/slowest?
- What day is …? What day will be …?
- Which one is longer/shorter?
- Which one is heavier/lighter?
- How many cups/spoons/bottles does … hold?
- Which container can hold more than this container?
- Whose container has the most capacity? How do you know?
- I am really thirsty. Which cup should I use? Why?

Vocabulary for Measurement

- match, sort, compare, order
- measure, same as

Time

- before, after, next, now, then
- quickly, slowly
- day, night, morning, afternoon
- today, yesterday, tomorrow
- week, days of the week
- month, months of the year
- calendar
- year, date
- autumn, winter, spring, summer, seasons

Length

- how long, short, wide, tall
- taller, longer, shorter, wider
- shortest to longest, longest to shortest

Mass

- heavy, heavier, heaviest
- light, lighter, lightest

Capacity

- more, less, empty, full

Volume

- big, little, large, small, tiny

Dipotšišo ka Kelo

- O dirile eng ge o tsoga?
- Wa dira eng ka morago?
- Gwa latela eng gape?
- O dirile eng pele ga fao …?
- O dirile eng ka morago ga fao …?
- Ke efe yeo e sepelago ka lebelo/nanya?
- Ke labokae …? Go latela lefe …?
- Ke lefe le letelele/kopana?
- Ke efe ye boima/bofefo?
- Ke efe … yeo e swarago tše ntši dikomiki/mahwana/mapotlelo?
- Ke efe yeo e ka tšhelago tše ntši go feta ye?
- Ke sekotlelo sefe seo se nago le mothamo o mogolo? O tseba bjang?
- Ke nyorilwe go fetiša. Ke senwelo sefe seo nka se dirišago? Lebaka?

Tlotlontšu ya Kelo

- bapetša, hlaola, swantšha, beakanya
- lekanyetša, swana le

Nako

- pele ga, morago ga, kgaufsi, gabjale, nako yeo
- ka pela, go nanya
- mosegare, bošego, ka meso, ka meriti
- lehono, maabane, gosasa
- beke, matšatši a beke
- kgwedi, dikgwedi tša ngwaga
- khalentara
- ngwaga, letšatšikgwedi
- lehlabula, marega, seruthwane, selemo, dihla

Botelele

- telele, kopana, bophara, telele
- motelele, kopana, sephara
- kopana go iša boteleleng, boteleleng go iša bokopaneng

Boima

- boima, boimanyana, boima kudu
- bofefo, bofefonyana, bofefo kudu

Motano

- ntši, nnyane, hlokego, tlala

Bolumu

- kgolo, nnyane, kgolokgolo, nnyanenyane, nnyane kudu

Data Handling

Young children ask questions as they try to make meaning of the world they live in. Teachers need to encourage learners in Grade R to ask questions and seek explanations. These questions can be used as the basis for collecting information (data) and finding out about things and events.

Sorting and classifying

Learners constantly sort and **classify** objects around them in different ways. They put objects into groups of different colours and sizes, they pack and unpack items at home and at school, sorting them into piles of different shapes and uses, for example:

- sorting and matching groups of objects: socks, shoes, plates, cups
- packing objects: cans, boxes, bottles, counters
- sorting counters or toys by attribute: colour, size, type
- tidy-up time: books, blocks, puzzles, games, crayons.

GLOSSARY

classify
the process of grouping similar things in a systematic way, e.g. separating clothes by winter and summer

Objects can be sorted and classified according to their similarities, such as colour. The more learners know about the properties of objects, such as plants and animals, and their similarities and differences, the more they are able to classify them into different groups.

Data Handling involves collecting, sorting and organising, representing and interpreting information in order to solve a problem or answer a question, for example, 'How many learners like eating apples?' In order to answer this question, learners would need to collect information, sort it and represent it in a way that would make it easy for them to interpret the information in order to answer the question.

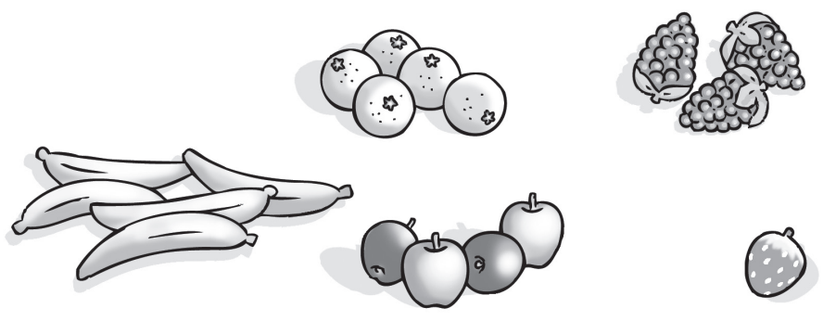


Figure 92 Collecting, sorting and organising into groups

Data Handling can link to other areas of learning, for example, finding out about:

- the world around us, by observing and recording the daily weather or collecting different kinds of leaves
- personal preferences, like favourite colours
- healthy foods, like fruit and vegetables.

Tšhomišo ya Tšhedimošo

Bana ba tla botšiša dipotšišo go leka go kwešiša lefase leo ba phelago go lona. Barutiši ba swanetše go hlohleletša barutwana Mphatong wa R go botšiša dipotšišo le go humana dikarabo. Dipotšišo tše di ba thuša go kgoboketša tšhedimošo goba tsebo le go ithuta ka dilo le ditiragalo.

Go hlaola le go beakanya

Barutwana ba dula ba hlaola le go **hlopha** dilo tšeo di ba dikologilego ka mekgwa ye e fapanego. Ba beakanya dilo ka dihlopha tša disaese le mebala, ge ba bea le go phatlalatša dilo ka gae goba sekolong, ba di beakanya ka dihlopha tša dibopego le mehola, go fa mohlala:

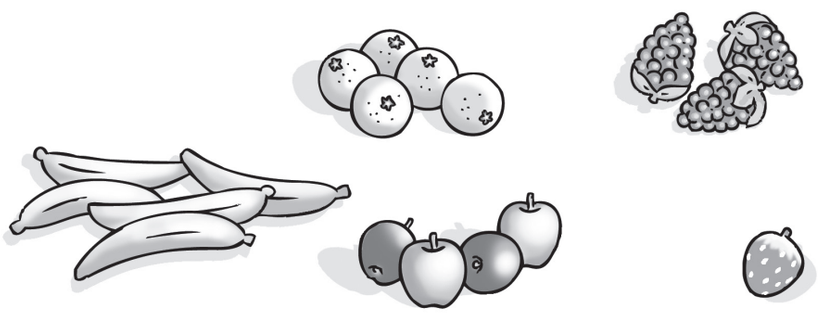
- hlaola le go bapetša dilo: disokisi, dieta, dipoleiti, dikomiki
- beakanya dilo: dithini, mapokisi, mapotlelo, dibaledi
- bekanya dibaledi goba dibapadišwa: mmala, saese, mohuta
- nako ya go hlwekiša: dipuku, dipoloko, marara, dipapadi, diphensele tša mebala (kherayone).

TLHALOŠANTŠU

hlopha
mokgwa wa go beakanya dilo tša go swana, mohl. diaparo tša marega le tša selemo

Dilo di ka hlaolwa go ya ka disaese goba mebala. Ge barutwana ba ithuta dilo tša go swana le diphoofolo le dimela ba thoma go lemoga ditshwano le diphapano tša tšona gomme gwa ba bonolo go di hlaola le go di bekanya.

Tšhomišo ya Tšhedimošo e akaretša go kgoboketša, go hlaola le go beakanya, go ahlaahla tšebišo gore ba tle ba kgone go humana dikarabo tša dipotšišo tšeo ba nago natšo, mohl. 'Ke barutwana ba ba kae bao ba ratago apola?' Gore ba hwetše karabo, barutwana ba swanetše go hwetša tšhedimošo, e hlaolwe gomme e beakanywe ka mokgwa woo e tlago ba thuša go araba potšišo.



Seswantšho sa 92 Go kgoboketšo, go hlaola le go beakanya ka dihlopha

Tšhomišo ya Tshedimošo e tswalana le dikarolo tše dingwe tša go ithuta, go fa mohlala, ba ka nyaka go tseba ka:

- lefase leo le re dikologilego, go lebelela le go rekhota tše di hlagago tšatši ka tšatši bjalo ka seemo sa boso
- tšeo ba di ratago, bjalo ka mmala
- dijo tša phepo, bjalo ka merogo le dienywa.

Identifying attributes

Initially, learners sort and classify objects according to one attribute, such as colour, size or shape. Gradually they can give reasons for why they have grouped objects in a certain way. They can also think of other ways of grouping the same objects, based on a different attribute. As learners explore and talk about how they are gathering, organising and sorting 'things' around them, they begin to organise objects into groups based on more than one attribute, such as the colour and shape of objects.

In practice ...

A teacher could ask learners to sort a collection of different coloured shapes:

- Find all the green shapes.
- Find all the squares.
- Find the green squares.

Sorting by two attributes is challenging for learners because they have to understand conceptually the difference between the three groups. Two of the groups have only one attribute while the third group has attributes that make it fit into both groups.

The Data Handling cycle

People often refer to the process of Data Handling as a cycle because the events or activities that are involved are repeated in the same sequence for each new question that is answered.

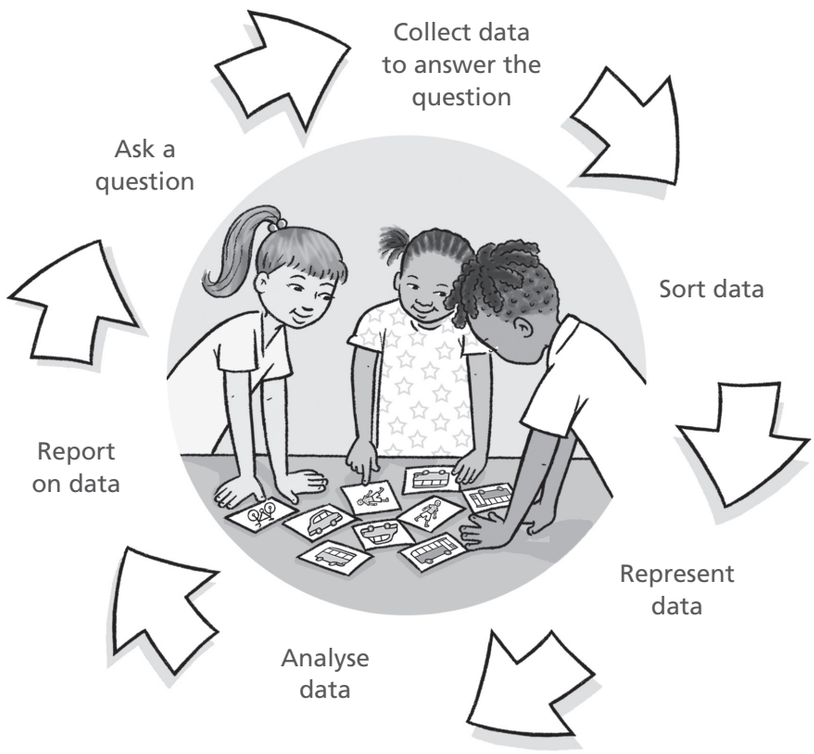


Figure 93 The Data Handling cycle

Boleng bja dilo

Barutwana ba thoma ka go ithuta go beakanya dilo ka boleng goba elemente e tee bjalo ka mmala, saese goba sebopego. Efela ge ba le gare ba ithuta ba thoma go tseba gore gobaneng ba di kgobokeditše goba ba di beakantše ka mokgwa wo o rilego. Ba kwešiša gore ba ka kgoboketša dilo tša go fapana gobane di na le setshwano se se rilego. Barutwana ba utolla le go bolela ka go kgoboketša, go beakanya le go hlaola 'dilo' tšeo di ba dikaneditšego ebile ba thoma go lemoga gore o ka hlaola le go beakanya dilo ka dielemente tša go fapana.

Go ikatiša ...

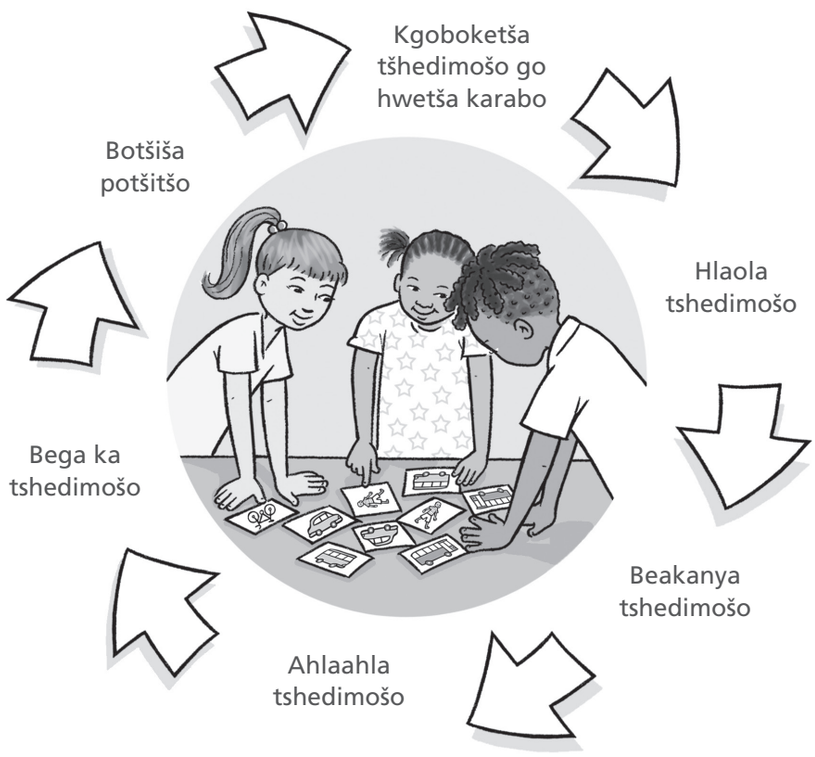
Morutiši a ka laela barutwana go hlaola kgoboketšo ya dibopego tša mehuta ye farologaneng:

- Hwetša dibopego tše di tala ka mmala.
- Hwetša di khutlonne.
- Hwetša dikhutlonne tše di tala.

Go hlaola go latela dilo tše pedi go tla ba boima go barutwana ba ge ba sa thoma gobane ba swanetše go kwešiša dielemente tše tharo. Dihlopha tše pedi di na le elemente e tee mola sehlopha sa boraro se na le seo se tswalanyago dihlopha ka bobedi.

Tšwetšopele ya Tšhomišo ya Tshedimošo

Batho gantši ba bolela gore Tšhomišo ya Tšhedimošo ke tatelano ya sediko ka gobane ditiragalo di a bušeletša efela di ka hwetša karabo ya go swana goba ya go fapana go dipotšišo tšeo di botšišwago.



Seswantšho sa 93 Tšwetšopele ya Tšhomišo ya Tshedimošo

1. **Ask a question:** Learners decide what they want to find out about, e.g. 'I wonder how many learners come to school by bus and how many come by car?' The thread that holds data together is the reason for collecting specific data or information. This means that the data collected or groups generated through sorting should feed into answering a question that the learners have decided they want to find answers to.
2. **Collect data:** Learners decide how they want to collect data based on the question or problem, e.g. by asking other learners how they come to school and drawing a picture for each.
3. **Sort data:** Learners organise and sort the data into groups according to the attribute. In order to answer questions and decide how to represent data they have collected, decisions need to be made about how things could be sorted.
4. **Represent data:** Learners explore different ways of showing or displaying the information they have collected, e.g. by placing real objects on the mat or constructing **pictographs**.
5. **Analyse data:** Learners describe and compare the data that is represented, e.g. which is the most or least used form of getting to school.

GLOSSARY

pictograph
a way of representing data using pictures

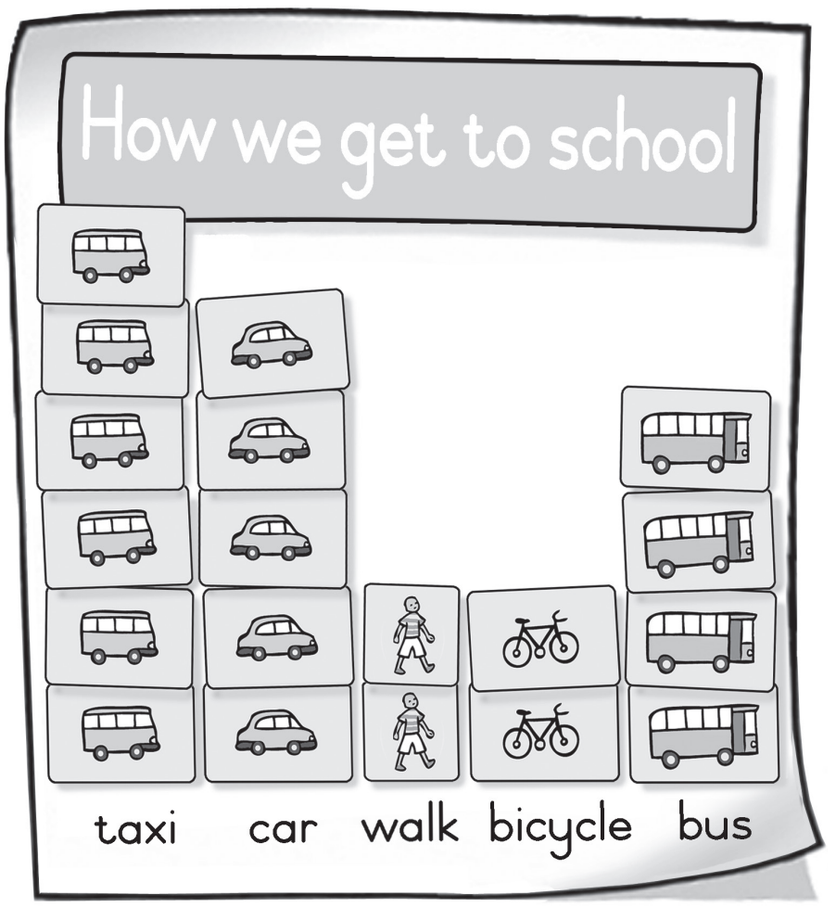


Figure 94 A pictograph

1. **Botšiša potšišo:** Barutwana ba botšiša seo ba nyakago go se tseba, mohl. 'Ke barutwana ba ba kae bao ba tlago sekolong ka pese, ke ba ba kae bao ba tlago ka sefatanaga?' Potšišo e ba thuša go kgoboketša tshedimošo gore ba tle ba kgone go fa tsebišo. Se se bolela go re tšhedimošo yeo e hweditšwego dihlopheng e tla hlaolwa go araba potšišo.
2. **Kgoboketša tšhedimošo:** Barutwana ba tla kgetha gore ba nyaka tshedimišo go barutwana ka bona ba bakae, mohl. ba ka ngwala palo goba ba torowa/thala.
3. **Hlaola tshedimošo:** Barutwana ba ka hlaola dikarabo go ya ka di elemente tša go fapana, ba swanetše gape go tšea sephetho sa gore ba beakanya palo ya barutwana bjang.
4. **Beakanya tšhedimošo:** Barutwana ba ithuta mehuta ya go fapana ya go bega seo ba se humanego, mohl. ka go bea dilo mo legogeng goba ka go hlala **kgoboketšo ya diswantšho**.
5. **Ahlaahla tshedimošo:** Barutwana ba hlaloša le go bapetša tšhedimošo yeo ba e humanego, mohl. ke mohuta ofe wa senamelwa woo o šomišwago kudu.

TLHALOŠANTŠU

kgoboketšo ya diswantšho
mokgwa wa go bega tshedimošo ka go hlama kgoboketšo ya diswantšho

Seswantšho sa 94 Kgoboketšo ya diswantšho

6. **Report on data:** Learners answer the question that was initially asked, 'I wonder how many learners come to school by bus and how many come by car?' They can easily see that four learners come to school by bus and five learners come to school by car. They can also compare other information, such as how many learners come to school in other ways and which mode of transport is used the most or least.

Questions to ask for Data Handling

- Which group has the most/least? Can you tell without counting?
- Which group has more/fewer?
- What do you think the answer will be?
- How should we find out?
- Why did you put these things together?
- Could you organise these another way?
- Do these belong here?
- Are oranges or bananas the most popular fruit?
- How many days were: sunny, windy, rainy, …?
- What would happen if …?

Vocabulary for Data Handling

- match, sort, compare
- same, different, belongs, does not belong
- more than, fewer than, same as
- always, sometimes, never
- row, column
- maybe, possible, sure

6. **Pego ya tshedimošo:** Barutwana ba araba potšišo yeo ba e botšišitšwego peleng, 'Ke barutwana ba ba kae bao ba sepelago ka pese, ke ba bakae bao ba sepelago ka sefatanaga?' Ba kgona go bona gore ke barutwana ba bane bao ba sepelago ka pese le ba babedi bao ba sepelago ka sefatanaga. Ba kgona go bona gore barutwana ba šomiša mekgwa efe ya dinamelwa go tla sekolong, le go bona gore ke mokgwa ofe woo o šomišwago kudu.

Dipotšišo tša Tšhomišo ya Tshedimošo

- Ke sehlopha sefe seo se nago le tše ntši/nnyane? O ka re botša ntle le go di bala?
- Ke sehlopha sefe seo se nago le tše ntši/nnyane?
- O gopola gore karabo e tla ba eng?
- Re ka humana bjang karabo?
- Go reng o beile dilo tše mmogo?
- O ka di beakanya ka mokgwa o mongwe?
- Na tše di swanetše go ba mo?
- Na dipanana le dinamune ke dienywa tša go ratega kudu?
- Ke matšatši a makae: a go fiša, moya, pula, …?
- Go tla direga eng ge …?

Tlotlontšu ya Tšhomišo ya Tshedimošo

- swantšha, hlaola, bapetša
- swana, fapana, tsamaelana, ga e tsamaelane
- go feta, ka tlase go, bjalo ka
- ka mehla, ka nako ye nngwe, le ga tee/le ka mohla
- mothaladi, kholomo
- mohlomongwe, go a kgonega, ka kgonthe

Glossary

abstract an idea, a thought or a feeling

acoustic counting counting out loud, saying the numbers in the correct order (also known as oral or rote counting)

applications different ways of using maths concepts and skills, e.g. checking your change in a shop, counting out your taxi fare, or dividing a packet of peanuts between three friends

attribute a feature or characteristic of something, for example, colour or shape

capacity the maximum or greatest amount that something (such as a bucket or a box, or a stadium) can hold

classify the process of grouping similar things in a systematic way, e.g. separating clothes by winter and summer

comparing looking for similarities and differences between two or more objects, e.g. 'these are both animals, but one of them is blue and the other one is red'. Comparing is about finding the relationship between objects based on specific features. This skill leads to the ability to classify objects.

concept an idea or thought. In other words, it cannot be touched. Maths concepts include number, counting, space, addition and subtraction.

developmental progression order in which skills and concepts build on one another

diversity a range of people with a variety of differences of, for example, identity, personality, capabilities, interests and background

elements the objects, movements or events in a pattern

exact precise, accurate

formative assessment assessment that provides information while learning is taking place and measures learners' progress

geometry an aspect of mathematics that deals with properties, measurement and relationships of points, lines and angles of shapes in space

inclusivity the practice of ensuring that all children, regardless of their differences, are included in all classroom activities

interact communicate with other people; do activities with other people

mass how heavy something is

matching identifying the same attribute in two or more objects, e.g. all the yellow objects. Matching is an important skill for learning one-to-one correspondence.

measurement 'how much' of something, e.g. height, length, mass, volume, capacity

mediation a joint activity where a person who knows more or has more highly developed skills guides others to learn something new

non-standard unit a unit of measurement that uses an object, such as a shoe, paper clip or cube; it can also be an informal item, such as a hand span, foot or body length

Tlhalošantšu

bapetša lemoga dilo tša go swana le tša go fapana magareng ga dilo tše pedi goba go feta, mohl. 'bobedi ke diphoofolo, ye nngwe ke ye sorolwana mola ye nngwe e le ye khubedu'. Go bapetša le go bontšha tswalano magareng ga dilo go ya ka sebopego. Go bapetša go ruta bokgoni bja go hlopholla.

beakanya go bea dilo goba ditiragalo ka tatelano, mohl. lenaneo la tšatši ka tšatši la ditiragalo tša phaposi, lenaneo la dilo tšeo barutwana ba swanetšego go di dira ka letšatši ('go tsoga, go hlapa meno le mmele, go ja difihlolo …') goba tatelano ya kanegelo

boakaretši mokgwa wa go kgonthišiša gore barutwana ka moka go sa šetše diphapano tša bona ba akaretšwa mešongwanang yeo e dirwago ka phapošeng

boima selo se boima ga kaakang

bolumu phapano magareng ga boteng bja selo le seo se lego ka gare

dielemente dilo, tšhepetšo goba ditiragalo tša paterone

dika dilo, tšhepetšo goba ditiragalo tša paterone

dikgopolo kgopolo, monagano goba maikutlo

diphapano diphapano magareng ga batho bjalo ka boitsibišo, mekgwa, tšeo ba di tsebago/kgonago, tšeo di ba kgatlhago le fao ba tšwago gona

dipharologantšho tšeo di farologanyago dibopego tša 2-D le dilo tša 3-D, mohl. botelele, bophara le bogodimo, mahlakore (difahlego), ntlha, khutlo

ditheo tša go ruta melawanakakaretšo yeo go dumelelanwago gore ke nnete/kgonthe

emela go šomiša dilo, leswao goba tiro go emela kgopolo

fahlela go gopodišiša taba goba polelo

go amana go kgokagana/tswalana le batho ba bangwe; gomme la dira dilo mmogo

go bala ka modumo go balela godimo go bontšha tetelano ya maleba ya dinomoro (gape e tsebagala ka balela godimo)

go balela godimo go balela godimo go bontšha tetelano ya maleba ya dinomoro (gape e tsebagala ka go bala ka modumo)

go gopola go bala dilo wa tseba go re 'ke tše kae'

go hlokomela šomiša dikwi go hwetša dilo, ditiragalo le dikarabo. Bana ba swanetše go hlokomela dilo gore ba kgone go hwetša tshedimošo ka lefase leo ba phelago go lona, mohl. go lebelela le go theeletša dilo tšeo di diregago.

go ithuta ka dikwi go šomiša dikwi go kwešiša tikologo, mohl. dikwi tša go bona, theeletša, kgoma le go nkgelela

go thekga mošongwana woo go wona motho yo a tsebago a thušago yo a sa tsebego

hlaola go hwetša dilo tša go swana, gomme tša hlophollwa ka sebopego. Ba ka thoma ka go hlokomela semelo se tee, bjale ka mmala, mohl. 'dibopego tsohle tse tala'. Bjalo di hlopholle ka dibopego tše pedi bjale ka mmala le bogolo, mohl. 'dibopego tsohle tše nnyane, dibopego tše tala'.

observing using our senses to find out about objects, events and attitudes. We need to observe to gather information about the world, e.g. looking and listening carefully to what is happening around us.

oral counting counting out loud, saying the numbers in the correct order (also known as acoustic or rote counting)

ordering lining up three or more objects or events in a sequence, e.g. the daily classroom routine, the learners' morning routine ('after I wake up I get out of bed, wash my face, eat my breakfast …') or the events in a story

orientation how objects are placed in relation to each other

pattern the regular sequence of objects, movements or events that are repeated in a predictable way

perspective the effect of distance or depth on the appearance of objects

pictograph a way of representing data using pictures

predict to say or estimate what will happen in the future

principle a general rule that is accepted to be true

prior knowledge what learners know from before and can already do

property the characteristics of a 2-D shape or 3-D object, e.g. length, width, height, sides (faces), edges, corners

rational counting counting objects to find out 'how many' (also known as resultative counting)

reasoning the thinking behind an idea or statement

relate how objects and ideas are connected to each other

represent to use objects, symbols or actions to stand for an idea or concept

resultative counting counting objects to find out 'how many' (also known as rational counting)

rote counting counting out loud, saying the numbers in the correct order (also known as acoustic or oral counting)

sensory perceptual skills using your senses to gather information about your environment, for example: seeing, hearing, touching, smelling and tasting

sequence the particular order in which objects, movements or events follow each other

sorting finding things that are the same, or alike, and grouping them by specific features. First sort by one feature, such as colour, e.g. 'all the green shapes'. Then sort by two features, such as colour and size, e.g. 'all the small, green shapes'.

subitising the cognitive ability to immediately recognise the total number of objects in a collection without counting

symbols things that represent or stands for something else, such as a number symbol, logo or road sign

symmetry when a shape or object can be divided into two equal halves along a central line

3-dimensional (3-D) an object has three dimensions: length, breadth (width) and height

2-dimensional (2-D) a shape has two dimensions: length and breadth (width)

volume the amount something is holding or the space the contents take up

hlaola selo se tee (lehlaodi) selo se se re thušago go hlaola selo magareng ga tše dingwe, go fa mohlala, mmala goba sebopego

hlopha mokgwa wa go beakanya dilo tša go swana, mohl. diaparo tša marega le tša selemo

kelo (ela) selo ke 'se se kaakang', mohl. bogodimo, botelele, boima, bontši, kelo

kgoboketšo ya diswantšho mokgwa wa go bega tshedimošo ka go hlama kgoboketšo ya diswantšho

kgolo ya tšwelopele tatelano yeo ka yona mabokgoni le mareo di tswalango

lekanela ge sebopego goba selo se arolwa ke mothaladi gare gomme sa tšwa diripa tše pedi tša go lekana

mahlakorepedi (2-D) sebopego sa mahlakore a mabedi: botelele le bophara

mahlakoretharo (3-D) dilo sa mahlakore a mararao: botelele, bophara le bogodimo

mareo kgopolo. Ka mantšu a mangwe, ke selo seo re sa kgonego go se swara. Dikgopolo tša dipalo di akaretša nomoro, palo, sebaka/sekgoba, go hlakanya le go ntšha.

maswao dilo tšeo di emago legatong la se sengwe bjalo ka leswao la nomoro goba leswao la tsela

metšo ya go se tlwaelege mokgwa wa go lekanyetša dilo bjalo ka go šomiša seeta, letlakala goba poloko e ka ba seatla, leoto goba mmele

motano bontši bja dilo tšeo di ka tlatšago selo (pakete, lepokisi goba lepatlelo)

naganela go akanya gore go latela eng

nepo kgonthe, ikgetha

paterone peakanyo goba tsela ya go dira dilo go ya ka tatelano, tshepetšo le ditiragalo ka mokgwa wa go tlwaelega

peakanyo ka mokgwa woo dilo di beakantšwego ka gona

tatelano tsela yeo dilo, tshepetšo goba ditiragalo di latelanago ka gona

tebego ka mokgwa woo bogolo le botebo bja dilo bo tšwelelago go ya ka bokgole bja tšona

tekolo ya semmušo tekolo yeo e fago tshedimošo ka tšwelopele ya barutwana nakong ya dithuto

temogo ke bokgoni bja go lemoga palo ya dilo ntle le go di bala

tirišo mekgwa yeo e fapanego ya tirišo ya mareo a mabokgoni a dipalo, mohl. go bala mašaledi a tšheledi ge o fetša go reka ka lebenkeleng, go bala tšhelete ya go lefa theksi goba go abaganya malekere magareng ga bana ba bararo

tsebo ya motheo seo barutwana ba se tsebego pele ba tsena sekolo

tšeometri karolo ya dipalo yeo e bolelago ka dilo, kelo/tekanyo le tswalano ya dintlha, methaladi le dikhutlo tša dibopego le dikgoba

tswalano ka mokgwa woo dilo le dikgopolo di tswalanago

tswalanya lemoga dilo tša go swana, mohl. dilwana tše serolwana. Go tswalanya ke mabokgoni a bohlokwa ge ba ithuta ka botee.

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