

Lenaneo le Ntlafaditsweng
la Mmetse la Kereiti ya R

Grade R Mathematics
Improvement Programme

Tataiso ya Mareo
Concept Guide



Sesotho | English

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la Mmetse la Kereiti ya R**

**Grade R Mathematics
Improvement Programme**

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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.

ACKNOWLEDGEMENTS

Special thanks to:

- ★ 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.

The Grade R Mathematics Improvement Programme is adapted from *R-Maths*, first published in 2017 by the Schools Development Unit, University of Cape Town. Copyright of *R-Maths* is held by the University of Cape Town.

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Projeke ya Mmetse wa Kereiti ya R le Ntlatfatso ya Puo ke bohato ba pele ba **Lefapha la Thuto la Gauteng (Gauteng Department of Education)** le molekane wa lona wa sehlooho, **Gauteng Education Development Trust**.

Ntshetsopele le tlhahiso ya mehlodi ya thupelo le ya phaposi ya borutelo bakeng sa Projeke ya Mmetse wa Kereiti ya R le Ntlatfatso ya Puo di ile tsa tswelletswe ke tshetso ka ditjhelete ya diprojeke e fanweng ke **United States Agency for International Development** le **Zenex Foundation**.

Projeke ya Mmetse wa Kereiti ya R le Ntlatfatso ya Puo e tsamaiswa ke **JET Education Services** mmoho le **Schools Development Unit** ya **UCT** le **Wordworks** jwaloka balekane ba setegeniki.

Schools Development Unit (SDU) ya **University of Cape Town (UCT)** ke molekane wa setegeniki wa mmetse bakeng sa Projeke ya Mmetse wa Kereiti ya R le Ntlatfatso ya Puo. SDU ke yuniti e kahara School of Education sa UCT e tsepameng ho ntshetsopele ya porofeshene ya matitjhere ho Mmetse, Saense, Tsebo ya ho Bala le ho Ngola/Puo le Bokgoni ba Bophelo ho tloha ho Kereiti ya R ho isa ho Kereiti ya 12. SDU e fana ka mangolo a botitjhere le a dithuto tse kgutshwane tse ananetsweng tsa UCT, mosebetsi o theilweng dikolong, ntshetsopele ya disebediswa le diphuputso bakeng sa ho tshetsa ho ruta le ho ithuta dikarolong tsohle tsa Afrika Borwa.

Kgatiso ena ya disebediswa tsa mmetse e unne molemo ho tshetsano tshetsong mmoho le basebetsimmoho ba Wordworks mme e ntlafaditswe ke kamahano ya bona mmoho le disebediswa tsa Lenaneo la Ntlatfatso ya Puo. E matlafaditswe ke mosebetsi wa baofisiri ba Bolaodi bo ka Tlase ba Kharikhulamo ya Thuto ya Bana ya Pele ho Sekolo le ya Mophato wa Motheo boemong ba Setereke le ba Provense ba Lefapha la Thuto la Gauteng, ba ileng ba tisa nyehelo e molemo ho dikahare tsa thuto mme ba tshwara dipuisano tse ahang bakeng sa ho netefatsa boikamahanyo le maano, ditshebetso le makgabane a provense.

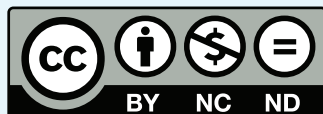
DITEBOHO

Diteboho tse kgethehileng ho:

- ★ Baofisiri ba Botsamaisi ba Kharikhulamo, Botsamaisi ba Thuto ya Matitjhere le Botsamaisi ba Thuto e Kgethehileng ba Lefapha la Thuto la Gauteng, bakeng sa nyehelo ya bona ntlafatsong ya disebediswa tsa rona tsa thuto.
- ★ Basebetsimmoho ba Wordworks, balekane ba seteginiki ba puo mabapi le Projeke ya Mmetse wa Kereiti ya R le Ntlatfatso ya Puo, bakeng sa ho sebedisana mmoho ho ntshetsopele ya disebediswa tsa thuto.
- ★ Baofisiri le matitjhere a Western Cape Education Department (WCED) ka nyehelo ya bona bakeng sa ho kenngwa tshetsong ka katleho ha Grade R Mathematics Programme (*R-Maths*) mane Western Cape pakeng tsa 2016 le 2019.
- ★ Sehlopha se ngolang sa *R-Maths*: baofisiri ba WCED ba Thuto ya Bana ya Pele ho Sekolo, Cally Kuhne, Karen Kaimowitz, Bev Da Costa, Meryl Glaser, Sue Bailie, Sue Connolly, Sue Heese.

Lenaneo le Ntlafaditsweng la Mmetse la Kereiti ya R le ntlafaditswe ho tloha ho *R-Maths*, e ileng ya phatlalatswa lekgetlo la pele ka 2017 ke Schools Development Unit, University of Cape Town. Tokelo ya kgatiso ya *R-Maths* e tshwerwe ke University of Cape Town.

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Mosebetsi wa sethatho o keke wa fetolwa ka tsela efe kapa efe kapa wa sebedisetswa ho kenya tjhelete. O ka nna wa etsa dikhopi ka bolokolohi, wa hatisa le ho aba disebediswa ka phaposing. O ka nna wa o jarollela sesebedisweng sefe kapa sefe sa elektroniki, wa o aba ka imeile, kapa wa o aplouta websaeteng ya hao ntle le tefiso. Ha o etsa khopi kapa o abelana ka buka ena o lokela ho fana ka kananelo e hlakileng ya mohlodi wa seo.

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Foreword from the Head of Department

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



GGT 2030
GROWING GAUTENG TOGETHER

Ketapele e tswang ho Hlooho ya Lefapha

Titjhare/Morutabana ya ratehang

Re a o amohela thupellong ena bakeng sa matitjhare/barutabana ba Kereiti ya R. Lefapha la Thuto la Gauteng (Gauteng Department of Education (GDE)) le beelletse ka pele Ntshetsopele ya Thuto ya Bana ba banyenyane jwaloka Sepheo sa 1 sa Lewa sa Iona. Hona ke ho netefatsa hore re ka aha motheo o tiileng le ho fetela ha baithuti Kereiting ya 1 ntle ho mathata.

Projeke ya Mmetse wa Kereiti ya R le Ntlafatso ya Puo e etseditswe ho fana ka *tshetso* e hlokwang haholo ka phaposeng ya borutelo bakeng sa matitjhare/barutabana ba Kereiti ya R mona Gauteng. E mabapi le ditshebetso tsa phaposeng ya borutelo tse nang le mawa a thabisang le mekgwa ya thuto e tshwanelang ho ruta le ho ithuta Kereiting ya R. Sena ke ho arabela phuputso e ileng ya tlaleha hore 65% ya bana ho potoloha Afrika Borwa ha ba eso be le bokgoni bo batlehang hore ba tsebe ho tswella ho Tsebo ya ho Bala le ho Ngola le Tsebo ya Dipalo ha ba kena ho Kereiti ya 1. Projeke ena e entswe ka sepheo sa ho tshehetsa matitjhare/barutabana ba Kereiti ya R hore ba lwantshane le phepetso ena.

Tebello ya Lefapha ke hore o itokiseditse ho ithuta le ho ba titjhare/morutabana wa Kereiti ya R ya matlafaditsweng ho feta. Ho ineela ha hao tshebetsong ya thupello, le kamora moo ho kenya tshebetsong *dithuto* tse ithutilweng ka phaposeng ya *hao* ya borutelo, ho tla nehela ho ntlafatso ya boitokisetso ba moithuti wa Kereiti ya R bakeng sa Kereiti ya 1.

Re tshepa hore bokenadipakeng bona bo tla thusa ho ntlafatsa bokgoni, tshibollo, le boiqapelo ba hao ha o ntse o aha motheo wa bohlokwa bakeng sa ho ithuta ha bana ba rona. Projeke ena e ne e keke ya tswella ntle le tshehetso ya balekane ba rona. Lefapha la Thuto la Gauteng le leboha tshehetso ya GEDT, Zenex Foundation le USAID ba ileng ba nehela bakeng sa boikitlaetso bona.

Ke tshepa hore o tla ithuta haholo lenaneong lena la thupello mme o ntlafatse tsela ya ho ithuta ya bana ba banyenyane ba tlhokomelong ya hao.

Ka boikokobetso



Mong Edward Mosuwe

Hlooho ya Lefapha: Lefapha la Thuto la Gauteng

3 Phupjane 2020



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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 le Ntlafaditsweng la Mmetse la Kereiti ya R (*Grade R Maths*)

Selelekela

Grade R Maths ke lenaneo la mmetse la pele ho sekolo bakeng sa Kereiti ya R le amahantsweng le ho atolosa dikahare tsa Mmetse wa Kereiti ya R ho SLTK. Lenaneo la *Grade R Maths*:

- ★ le etseditswe ho fana ka moralo wa ho ruta le ho ithuta mmetse Kereiting ya R
- ★ le thehilwe ho sehlopha sa dintlhatheo tsa ho ruta tse kgothaletsang ho ithuta ka katleho
- ★ le hlalosa dintlha/mareo a leng bohlokwa bakeng sa kgolo ya tsebo ya mmetse baneng ba banyenyane
- ★ le hlophisa dikahare tsa mmetse wa Kereiti ya R mme le fana ka mehopollo e sebetsehang bakeng sa phaposi ya borutelo
- ★ le fa matitjhere tataiso e kenelletseng e tshehetsang moralo wa bona wa thuto.

Lentswe lena 'mmetse' le sebediswa ka ditsela tse fapaneng bukeng ena. Ena ke tsela eo le sebediswang ka yona le seo lereo ka leng le se bolelang:

- **mmetse** ke kakaretso ya tsebo e kenyeletsang mareo, bokgoni le ditshebediso
- **Mmetse wa Kereiti ya R** ke kharikhulamo e ho Setatementsa sa Leano la Kharikhulamo le Tekanyetso (SLKT)
- **Grade R Maths** ke lebitso la lenaneo lena la mmetse wa pele ho sekolo bakeng sa Kereiti ya R
- **mmetse wa Kereiti ya R** ke mofuta wa ho ithuta mmetse ho etsahalang Kereiting ya R.

Tataisong ena, lentswe lena 'bana' le sebedisitswe ho bolela bana pele ba qala Kereiti ya R. Lentswe lena 'moithuti/baithuti' le sebedisitswe ho bua ka bana ba ho Kereiti ya R.

Dintlha tsa *Tataiso ya Mareo* di kenyeletsa:

- ★ tlhahisoleseding e mabapi le ho ruta le ho ithuta mmetse
- ★ mabokoso a '**Diketsahalo**' a fanang ka mehlala ya kamoo dintlhatheo le mehopollo tse ka hara buka ena di ka sebediswang ka teng ke baithuti kapa mmoho le bona
- ★ mabokoso a **tlelosari** a fanang ka meeelo ya mantswa a ka bang matjha kapa a ba thata ho ka utlwisiswa
- ★ lenane la tlelosari la mantswa ohle a matjha a sebedisitsweng bukeng ena.

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.

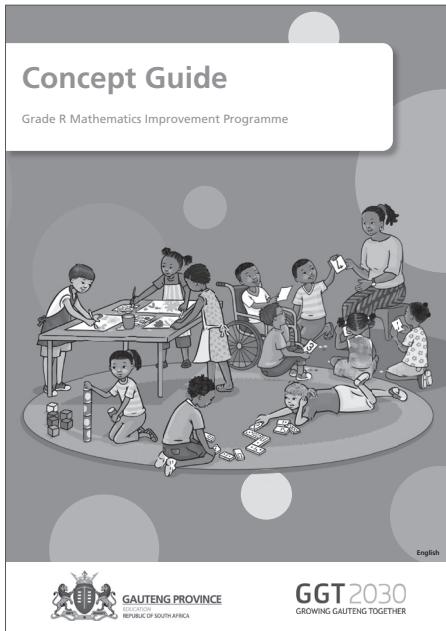


Figure 1 The *Concept Guide*

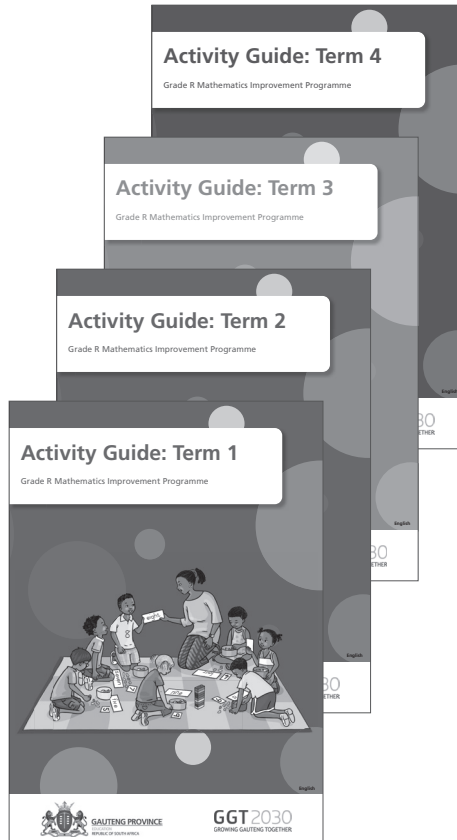


Figure 2 *Activity Guides* Term 1–4

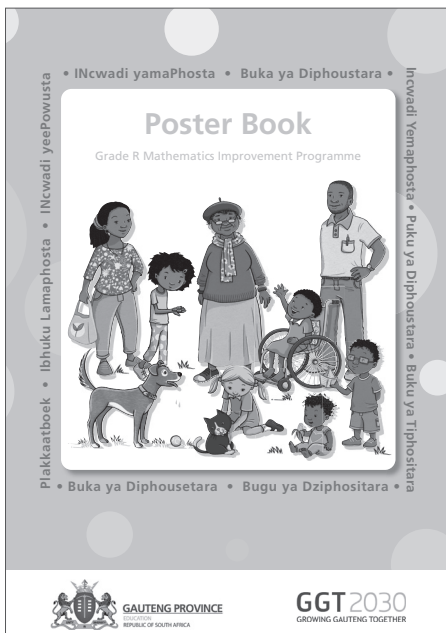


Figure 3 The *Poster Book*

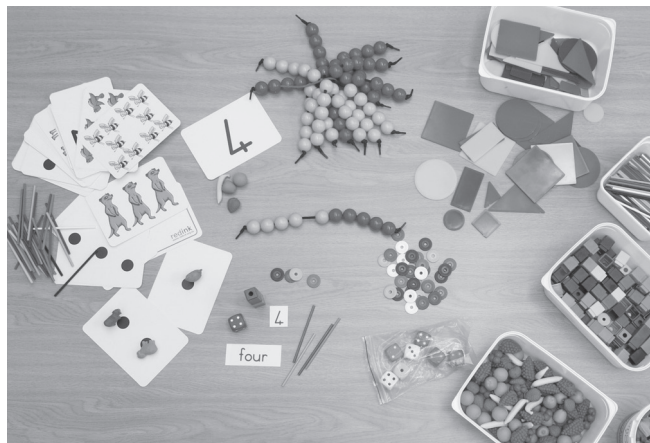


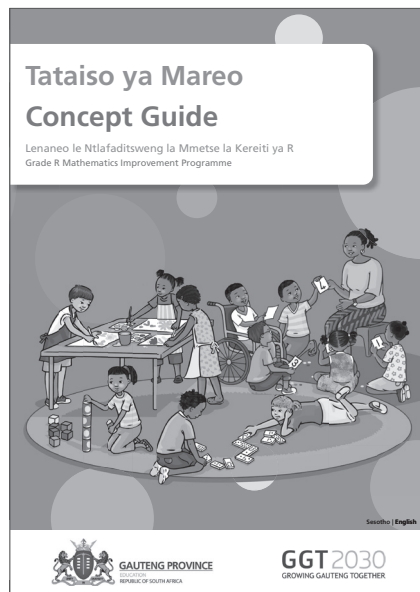
Figure 4 *Resource Kit*

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

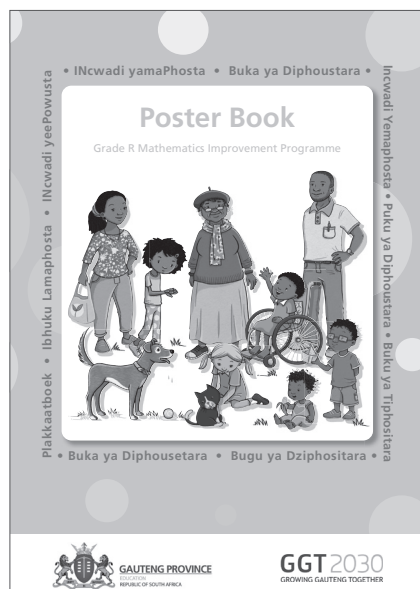
Grade R Maths

Ho na le dikarolo tse nne ho *Grade R Maths*:

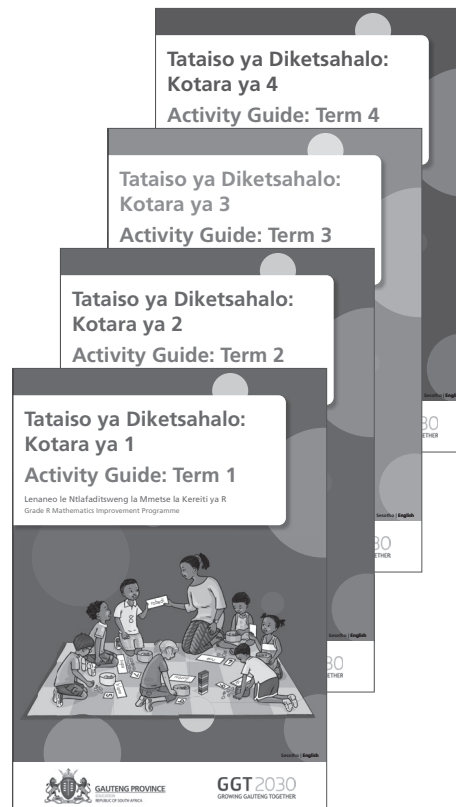
- ★ *Tataiso ya Mareo*
- ★ *Ditataiso tsa Diketsahalo* tse nne – e le nngwe bakeng sa kotara ka nngwe ya sekolo – tse fang matitjhere a Kereiti ya R ditlhahiso tsa beke le beke bakeng sa ho ruta le ho ithuta mmetse
- ★ *Buka ya Diphoustara* e nang le diphoustara tse leshome le motso o le mong
- ★ *Khiti ya Disebediswa* tsa phaposing ya borutelo e nang le disebediswa tsa mmetse bakeng sa ho ithuta le ho ruta ka bonngwe le ka dihlotshwana.



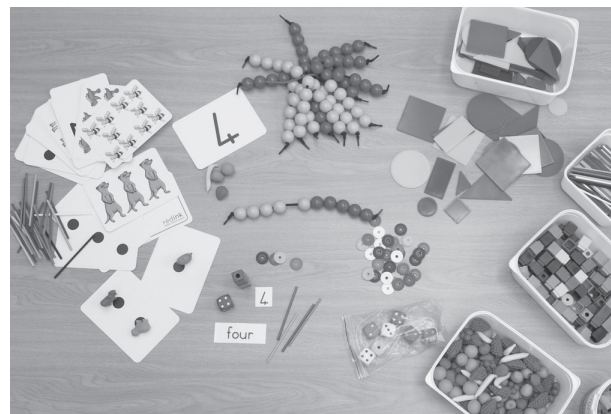
Setshwantsho sa 1 *Tataiso ya Mareo*



Setshwantsho sa 3 *Buka ya Diphoustara*



Setshwantsho sa 2 *Ditataiso tsa Diketsahalo Kotara ya 1-4*



Setshwantsho sa 4 *Khiti ya Disebediswa*

O ka fumana tlhahisoleseding e nngwe mabapi le e nngwe le e nngwe ya dikahare tsa *Grade R Maths* ka hara *Tataiso ena 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

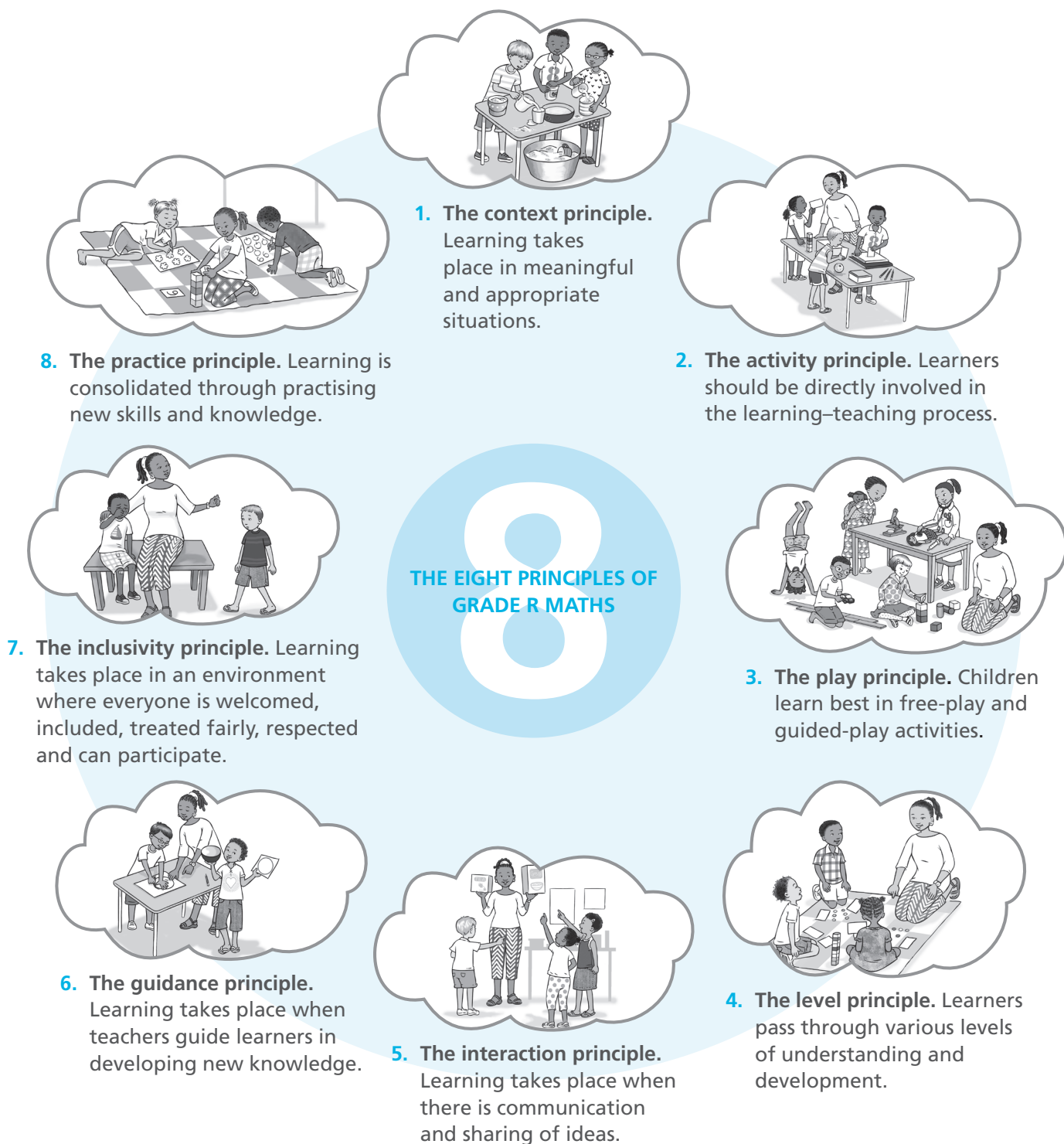


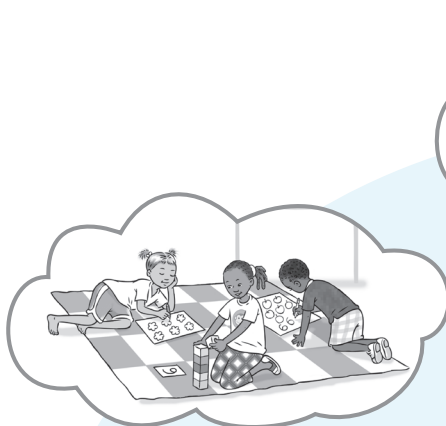
Figure 5 Principles of the Grade R Maths programme

Dintlhatheo tse tataisang tsa ho ruta mmetse ho Kereiti ya R

Grade R Maths e kgothaletsa mokgwa wa ho ruta le ho ithuta o susumetsang le ho kgothatsa bakeng sa baithuti. Baithuti ba tla iphumanela tsebo le bokgoni tseo ba tlang ho aha hodima tsona dikereiting tse latelang. Phuputso ya tsa thuto ka diphaposing tsa borutelo e hlakisitse sehlopha sa **dintlhatheo** tsa ho ruta, tse nang le seabo ho ithuteng ho atlehileng. Lenaneo la *Grade R Maths* le theilwe ho dintlhatheo tse na tse robedi.

TLELOSARI

dintlhatheo
molawana wa
kakaretso o
amohelwang
o nepahetse



8. Ntlhatheo ya boikwetliso. Ho ithuta ho kgobokanngwa ka ho ikwetlisetsa bokgoni le tsebo tse ntjha.



1. Ntlhatheo ya tikoloho. Ho ithuta ho etsahala maemong a nang le moelelo le a loketseng.



2. Ntlhatheo ya diketsahalo. Baithuti ba lokela ho nka seabo ka ho otloloha mokgwatshehetsong wa ho ruta le ho ithuta.



7. Ntlhatheo ya kenyeletso. Ho ithuta ho etsahala tikolohong eo bohle ba amohelwang, ba kenyeletswang, ba tshwarwang ntle le leeme, ba hlontjhwang mme ba ka ba le seabo.



3. Ntlhatheo ya ho bapala. Bana ba ithuta hantle ho feta diketsahalong tsa ho bapala ka bolokolohi le tsa ho bapala ho tataiswang.



6. Ntlhatheo ya tataiso. Ho ithuta ho etsahala ha matitjhere a tataisa baithuti ho ntshetsa pele tsebo e ntjha.



5. Ntlhatheo ya kgokahano. Ho ithuta ho etsahala ha ho ena le dipuisano le ho abelana ka mehopolo.



4. Ntlhatheo ya mekgahlelo. Baithuti ba feta mekgahlelo e fapaneng ya kutlwisiso le ntshetsopele.

Setshwantsho sa 5 Dintlhatheo tsa lenaneo la *Grade R Maths*

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.

Leha dintlhatheo tsena tse robedi tsa ho ruta di ngotswe mananeng a fapaneng, kaofela ha tsona di a amana.

Karolo e latelang ya *Tataiso ya Mareo* e o fetisa dintlhatheong tse robedi tseo *Grade R Maths* e theilweng ho tsona. Ntlhatheo ka nngwe e na le:

- ★ tthaloso
- ★ lebokoso la 'Diketsahalo'
- ★ tlhahisoleseding e nngwe e mabapi le ntlhatheo.

1. Ntlhatheo ya tikoloho

Tlhaloso

Ho ithuta ho etsahala ha maemo (kapa tikoloho) a ena le moelelo ho moithuti. Hangata, mefuta e lokileng ho feta ya mathata a mmetse e kenyeletsa mehopolo ya mmetse e tswang maemong a nnete a bophelo. Baithuti ba fumana ho le bobebe ho sibolla ditharollo tsa mathata ao ba kgonang ho a amanya le maemo a nnete a bophelo ba bona.



Diketsahalong ...



Ho na le menyetla bakeng sa ho ithuta mmetse ho diketsahalo tse ka bang tsohle tsa kamehla tsa phaposi ya borutelo le tsa lapeng. Phephetso ho matitjhere le batswadi ke ho eellwa menyetla ena le ho e sebedisa ho aha hodima seo baithuti ba seng ba se tseba.

Ditaba tse ding mabapi le ntlhatheo ya tikoloho

Mmetse wa pele ho sekolo lapeng

Dintho tseo bana ba banyenyane ba kopanang le tsona lapeng le papading ya ka ntle di aha metheo bakeng sa kutlwisiso ya bona ya **dikgopolo** tsa bohlokwa tsa mmetse.

Masea, bana ba kgasang le bana ba banyenyane ba sebedisa dikutlo tsa bona ho ithuta ka lefatshe le ba potileng. Ba bontsha thahasello ho dibopeho tsa motheo, ba bopa dipaterone tse bobebe mme ba ka ithuta ho bala dintho le pele ba etla sekolong. Ba ithuta ka lefatshe ha ba ntse ba bua, ba eja le ho bapala, mme ba ithuta mareo a mmetse ka nako e le nngwe. Ho etsa mohlala:

- ★ Ha ba leka ho kenya dintho tse kgolo haholo ka molomong, ba ba le kutlwisiso ya boholo.
- ★ Ha ba sebedisa mabokoso le dirolo tsa pampiri ya ntlwana ho aha dikoloi tsa boinahanelo, ba ba le kutlwisiso ya sebopeho.
- ★ Ha ba leka ho phahamisa ntho e boima haholo ho ka nkuwa, ba qala ho utlwisisa mohopolo wa boima.
- ★ Ha ba bona tshwano le phapano pakeng tsa dipokello tse nyane tsa dintho, ba a nyalanya, ba a hlophisa mme ba a bapisa.

Bana ba banyenyane ba qala ho bopa kgopolo e itseng mabapi le mareo a mmetse kgale pele ba rutwa mmetse sekolong.

TLELOSARI

kgopolo

mohopolo kapa monahano. Ka mantswa a mang, ha o tshwarehe. Dikgopolo tsa mmetse di kenyeletsa nomoro, ho bala dintho, sebaka, ho kopanya le ho tlosa.

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

Diketsahalo tsa kamehla tsa bana lapeng di tletse menyetla bakeng sa mmetse wa pele ho sekolo. Ho etsa mohlala:

- ★ nakong ya diketsahalo tse hlophisitsweng tsa letsatsi le letsatsi, mohl. dinako tsa dijo, ho hlapa, ho apara le ho phutha dintho
- ★ ha ba sebedisa dintho, mohl., ba kwala ditshelo tsa polasetiki ka dikwahelo le ha ba seha ka dikere
- ★ ha ba bapala, mohl. ha ba abelana dintho, ba iketsa eka ba a pheha kapa ba iketsa eka ba kganna tekese
- ★ ha ba taka le ho penta
- ★ ha ba etsisa batho ba baholo ha ba bala dintho.

Diketsahalo tsena di aha boitshepo ba bana. Ka yona nako eo, di ntshetsa pele tsebo le kutlwisiso ya bona ya lefatshe le ba potileng.



Setshwantsho sa 6 Ho sebedisa diketsahalo tsa letsatsi le letsatsi ho sibolla dikgopolo tsa mmetse.

Kutlwisiso ya bana ba banyenyane ya mmetse e a hola ha nako e ntse e tsamaya.

- ★ Ba ithuta hore dinomoro di na le boleng kapa bongata bo amanang le tsona bo sa fetoheng, mohl. ha ngwana wa dilemo tse tharo a phahamisa menwana e meraro ho bontsha bongata ba 'tharo'.
- ★ Ba ka nna ba pheta letoto la dinomoro, mohl. 'nngwe, pedi, tharo, tshelela, leshome'. Ha ba etsa sena ba kopitsa ho batho ba baholo ka ho sebedisa mantswe a ho bala ntle le ho utlwisisa ka botebo seo ba se bolelang.

Ha bana ba ntse ba ipapalla ba le bang kapa le bana ba bang, mme ha ba ntse ba **hokahana** le batho ba baholo ba phelang le bona, ba qala ho bopa mehopollo e mabapi le mareo a nomoro, sebopeho, sebaka le mometho.

Dikgopolo tseo bana ba ithutang tsona lapeng ka nako ya diketsahalo tsa letsatsi le letsatsi ka nako tse ding di bitswa 'tsebo ya kamehla'. Mohlala wa sena ke ha bana ba ntsha dijana tse lekaneng batho bohle ba lokelang ho ja mme ba ntsha kgaba e le nngwe bakeng sa sejana ka seng. Ha ba etsa sena, ba ithuta mabapi le ho nyalanya ntho e nngwe ho e nngwe.

TLELOSARI

hokahana

buisana le batho ba bang; etsa diketsahalo mmoho le batho ba bang

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

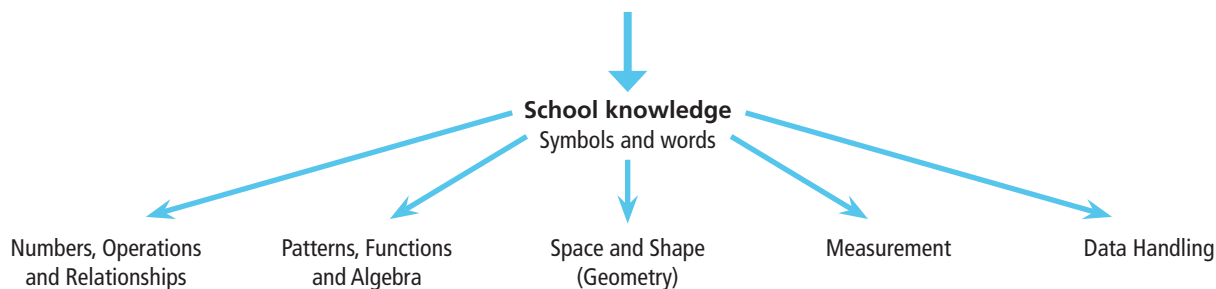


Figure 8 The link between everyday knowledge and school knowledge

Mmetse maamong a sekolo

Batho ba bangata ba nahana hore mmetse e mabapi feela le dinomoro le ho etsa dipalo empa ena ke karolo e le nngwe feela ya mmetse, e bitswang dipalo (arithimetiki). Mmetse hantlente o kenyeletsa dikgopolo tse fapaneng tse ngata le bokgoni. Hape e kenyeletsa mekgwa e fapaneng ya ho sebedisa dikgopolo tse na le bokgoni bona. Tse na di bitswa 'ditshebediso'. Kahoo ha re bua ka mmetse re bolela dikgopolo, bokgoni le ditshebediso tsa mmetse.

Bana ba sebedisa mareo a mmetse letsatsi le leng le le leng esita leha ba sa nahane hore ba etsa mmetse. Ba sebedisa mareo a mmetse ha ba tlatsa kopi hore e se ke ya phophoma, ba tseba hore ba ka sebedisa setshelo sefe ho lekanya diboloko kaofela, ba eya lebenkeleng kapa ba bolela hore re na le dintho tse kae ho tse itseng.



TLELOSARI

ditshebediso

ditsela tse fapaneng tsa ho sebedisa mareo a mmetse le bokgoni, mohl. ho lekola tjelete e kgutlileng ha o reka lebenkeleng, ho bala tjelete ya ho lefella tekesi, kapa ho arola pakana ya matokomane pakeng tsa metswalle e meraro

Setshwantsho sa 7 Bohle re sebedisa mareo a mmetse maphelong a rona a letsatsi le letsatsi — ho kgetha lebokoso le boholo bo lekaneng.

Sekolong, bana ba ahella hodima tsebo ena, ho etsa mohlala, ha ba hlophisa dintho ka dihlotshwana mme ebe ba bapisa lenane la dintho tse sehlotshwaneng ka seng. Jwale ebe ba ithuta ho bala dintho ba sebedisa tatellano e nepahetseng ya dinomoro mme ba sebedise le neeletsano pakeng tsa ntho tse pedi ho fumana lenane lohle ka hara pokello. Sena se bitswa 'tsebo ya sekolong'.

Tsebo ya kamehla

ho bapisa, ho hlophisa, ho nyalanya, ho bolela mabitso a dinomoro, ho ithuta ka feta/tlase ho, kgolwanyane/nyane ho feta, bobebe/boima



Setshwantsho sa 8 Lehokela pakeng tsa tsebo ya letsatsi le leng le le leng 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.

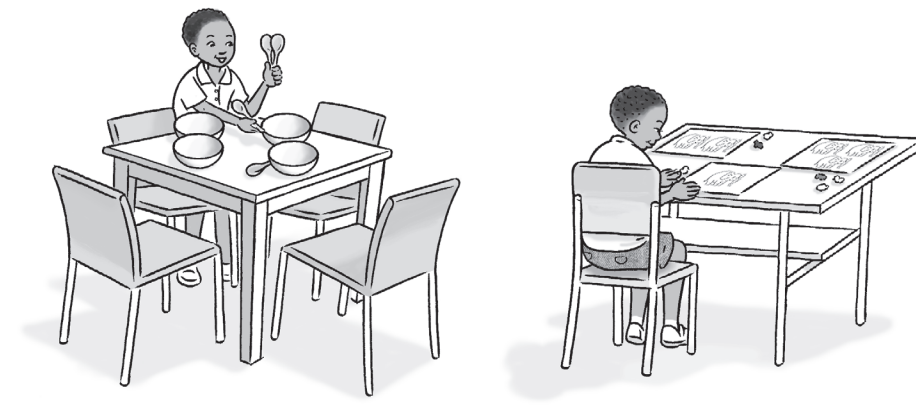


Figure 9 Counting and one-to-one matching at home and at school

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

Ha bana ba fihla ho Kereiti ya R, ba tla le boitsebelo ba bona esitana le kutlwisiso ya bona le mehopollo e mabapi le lefatshe. Ena ke tsebo ya bona ya kamehla. Tsebo ya kamehla e keke ya tshwana bakeng sa bana bohle kaha e itshetlehile ho lelapa la ngwana, setjhaba le botjhaba ba hae. Tsebo ya kamehla ka dinako tse ding e bitswa **tsebo ya pele** mme matitjhere a e sebedisa ho aha hodima seo bana ba seng ba se tseba le seo ba ka se etsang.

TLELOSARI

tsebo ya pele

seo baithuti ba se tsebang ho tloha morao le seo ba seng ba kgona ho se etsa

Kereiting ya R, baithuti ba lokela ho ba le monyetla wa ho sibolla, ho batlisisa le ho etsa diteko ka mehopollo e metjha. Hape ba lokela ho kgothaletswa ho bua le titjhere ya bona le baithuti ba bang mabapi le seo ba se etsang le ho se nahana. Baithuti ba hloka tsela e nepahetseng ya ho ruta ho ba thusa ho:

- ★ nahana le ho bua ka tseo ba kopanang le tsona ba sebedisa puo ya mmetse
- ★ aha tsebo e ntjha ya mmetse
- ★ tebisa kutlwisiso ya bona ya mmetse
- ★ ho ba le maikutlo a lokileng mabapi le mmetse.

Ba hloka ho nka seabo diketsahalong tsa lapeng le tsa sekolong tse ba dumellang ho sibolla mareo a mmetse, le ho bona mmetse jwaloka ntho e monate le e thabisang.



Setshwantsho sa 9 Ho bala dintho le ho nyalanya e nngwe ho e nngwe lapeng le sekolong

Ho bopa tikoloho ya ho ithuta mmetse

Matitjhere a lokela ho etsa tikoloho ya ka phaposing ya borutelo eo ho yona baithuti:

- ★ ba ikutlwang ba bolokehile le ho sireletseha
- ★ ba nang le boitshepo bo lekaneng hore ba hlahise maikutlo a bona
- ★ ba nkang seabo diketsahalong kaofela.

Tikoloho ya kaho bakeng sa ho ithuta mmetse e lokela ho kenyeletsa:

- ★ disebediswa (tse kang dipapadi, disebediswa tsa ho aha le diphazele) tse hlophisitsweng hore baithuti ba kgone ho bona dintho tse teng mme ba kgethe tseo ba hlokanang ho di sebedisa
- ★ menyetla ya ho sibolla le ho batlisisa
- ★ menyetla bakeng sa baithuti ho sebedisa disebediswa tsa ho rarolla mathata le ho rekota ditharollo tsa bona
- ★ menyetla bakeng sa baithuti ho sebedisa puo ya mmetse, jwaloka 'ho feta', 'kgolo ho', 'huku', 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.

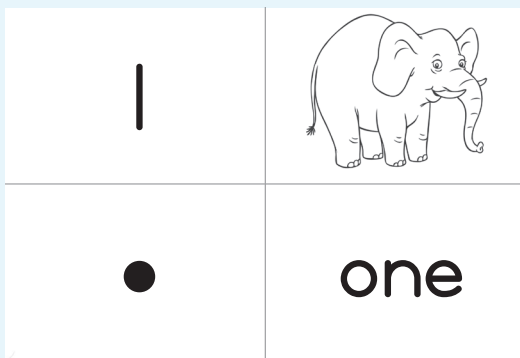


Figure 10 Number frieze



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

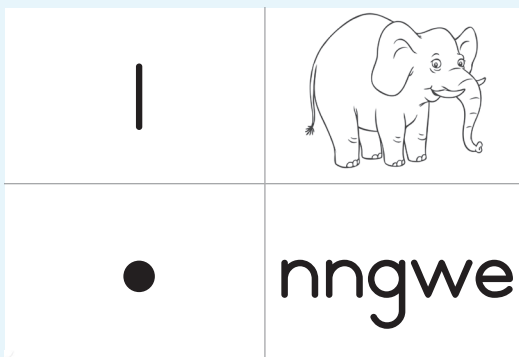
★ diketsahalo tse kenyeletsang **ho sheba**, **ho nyalanya**, **ho bapisa**, **ho hlophisa** le **ho beha ka tatelano**.



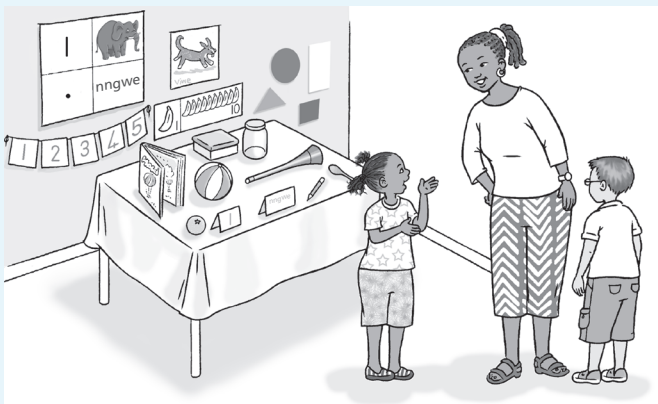
Diketsahalong ...



- Lokisa sebaka se tletseng dintho tsa mmetse ka phaposing ya borutelo. Sebedisa tafole e tshetlehilweng leboteng ele hore dileibole, ditshwantsho le dintho di kgone ho bewa hantle mme ho buisanwe ka tsona.
- Hlophisa tjhate ya maemo a lehodimo, khalendara, molapalo (mola wa ho aneha dinomoro) le difrizi tsa dinomoro sebakeng sena mme o di sebedise bakeng sa dipuisano tsa letsatsi le letsatsi.
- Bontsha mesebetsi ya baithuti sebakeng sena.
- Kgothaletsa baithuti ho tla le dintho tse tswang malapeng a bona bakeng sa dipuisano. Kenyeletsa dintho tse tafoleng ela ya pontsho mme o fe baithuti ba tlleng le dintho monyetla wa ho bua ka tsona.



Setshwantsho sa I0 Frizi ya dinomoro



Setshwantsho sa II Sebaka sa mmetse

2. Ntlhatheo ya diketsahalo

Tlhaloso

Ntlhatheo ya diketsahalo e bolela ho ithuta ka ho etsa dintho ka bowena. Baithuti ba lokela ho nka seabo ka ho etsa ho itseng thutong ya bona. Ho ithuta mmetse Kereiting ya R ho lokela ho kenyeletsa diketsahalo tse natefelang, tse etswang ka matsoho tse kenyeletsang dintho tsa letsatsi le leng le le leng le tseo re kopanang le tsona tse nang le moelelo. Moo ho kgonehang diketsahalo di lokela ho fa bana menyetla ya ho sebedisa mmele ya bona yohle le dikutlo tsa bona, haholoholo pono, kutlo le ho thetsa.

ho sheba

ho sebedisa dikutlo tsa rona ho fumana lesedi mabapi le dintho, diketsahalo le maikutlo a batho. Re hloka ho batlana le ho bokella tlhahisoleseding mabapi le lefatshe, mohl. ho sheba le ho mamela ka hloko dintho tse etsahalang moo re phelang.

ho nyalanya

ho hlwaya makgetha a tshwanang dinthong tse pedi kapa ho feta, mohl. dintho tsohle tse tsehla. Ho nyalanya ke bokgoni ba bohlokwa bakeng sa ho ithuta neeletsano pakeng tsa dintho tse pedi.

ho bapisa

ho batlana le ditshwano le diphapano pakeng tsa dintho tse pedi kapa ho feta, mohl. 'tsena ke diphoofolo tse pedi empa e nngwe ya tsona e bolou mme e nngwe e kgubedu'. Ho bapisa ho mabapi le ho fumana kamano pakeng tsa dintho ho shebilwe makgetha a itseng. Bokgoni bona bo lebisa ho tsebo ya ho hlophisa dintho ho ya ka manane.

ho hlophisa

ho fumana dintho tse tshwanang, kapa tse tsamaelanang, le ho di hlophisa ho ya ka makgetha a itseng. Pele hlophisa ho ya ka lekgetha le le leng, jwaloka mmala, mohl. 'dibopeho tsohle tse tala'. Jwale di hlophise ho ya ka makgetha a mabedi jwaloka mmala le boholo, mohl. 'dibopeho tsohle tse nyane tse tala'.

ho beha ka tatelano

ho beha moleng dintho tse tharo kapa ho feta kapa diketsahalo ka tatelano, mohl. tatelano ya diketsahalo tsa letsatsi le letsatsi ka phaposing ya borutelo, ketsahalo ya letsatsi le letsatsi ya hoseng ya baithuti ('ha ke qeta ho phaphama ke theoha betheng, ke hlatswe sefahleho, ke je dijo tsa hoseng ...') kapa diketsahalo tsa paleng

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.

Baithuti ba Kereiti ya R ba lokela ho ithuta ho bala le ho hlahlamanya dinomoro ka dipina le diraeme, ba sebedisa diketso le metsamao e meholo, jwaloka ho opa matsoho, ho tloatlola le ho tla ho emela dinomoro ha ba ntse ba bala. Ho bala ka morethetho, ho kopolla dinomoro tlapangolong le ho ngola matshwao a dinomoro pakeng tsa mela ka pentshele ha se ditsela tse ntle ka ho fetisisa tsa ho ithuta mabapi le dinomoro.

Baithuti ba lokela ho batla ka bobona le ho pakolla dintho tse bokelletswe tseo ba ka di balang mme ba di leibole ka dipalo tsa mantswe le dikarete tsa matshwao. Ba lokela ho ngola matshwao a dinomoro lehlatheng, ba di bope ba sebedisa Plasticine, ba di pente, kapa ba di tereise mokokotlong wa motswalle. Mkgwa ona o tsamaisana le ho ngola ha pele mme o hokela popeho ya letshwao la nomoro le lebitso la nomoro.

Ha o tsebisa nomoro e ntjha, ke mohopolo o motle ho hokanya lebitso la nomoro, letshwao, diketso tsa mmele le pokello ya dintho ka ho sebedisa pale. Sena se ka etswa ka ho kgothaletsa baithuti ho bala dintho tse setshwantshong, kapa ho hopola lenane la dintho tse leng paleng, kapa ba ka nna ba opa matsoho, ba tloatlola kapa ba bontsha menwana ya bona ho emela nomoro e paleng.



Diketsahalong ...

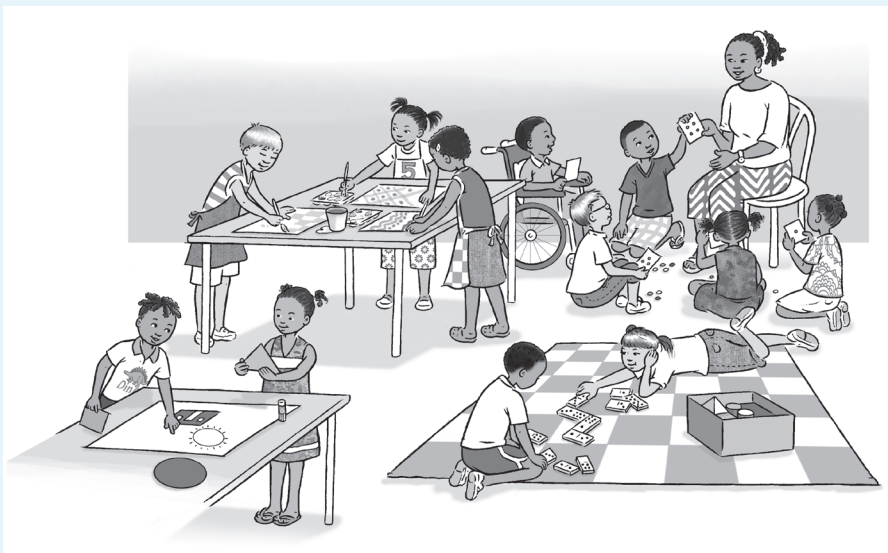


Titjhere o etsa tse latelang:

- O hlophisa diketsahalo tse etswang ka matsoho tse loketseng dilemo tsa baithuti, maemo a bona a kgolo le dithahasello tsa bona.
- O hokahanya seo baithuti ba seng ba se tseba le seo ba ka se etsang, le mehopollo e metjha, puo, mareo le/kapa bokgoni tse lokelang ho ithutwa.

Baithuti:

- ba lokolohile ho ka etsa diteko, ho batlisisa le ho botsa dipotso
- mmoho, ba abelana ka mehopollo le ho botsa dipotso.



Setshwantsho sa 12 Bana ba ithuta ka diketsahalo tse etswang ka matsoho.

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**.

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 objects 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.

GLOSSARY

symbols

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

3. Ntlhatheo ya ho papala

Tlhaloso

Papadi e na le diketsahalo tse natefelang le tse phahamisang kgolo le ntshetsopele ya ngwana. Papadi e na le meputso ya boitshwaro, phedisano, mmele, kelello le maikutlo. Papadi e dumella baithuti ho ba le seabo thutong ya bona le tshibolong ya tikoloho ya bona. Ho ithuta Kereiting ya R ho lokela ho ba le diketsahalo tse natefelang, tse etswang ka matsoho le boiphihlelo bo sebedisang dintho tse ngata tse tshwarehang le **matshwao**.

Ho ithuta ka ho papala

Bakeng sa bana, ho ithuta le ho papala ha se diketsahalo tse arohaneng. Ho papala ho ka bolela dintho tse ngata, jwaloka diketsahalo tsa ka ntle tse sebedisang mmele; ho papala ka lehlabathe le metsi; ho papala bonketsisane le metswalle kapa o le mong; ho papala ka diboloko le dibapadiswa tsa ho aha; kapa ho papala dipapadi tsa ho mamela, dipapadi tsa ho noha kapa dipapadi tsa dikarete. Leha diketsahalo tse ding tsa papadi di hloka nako e ekeditsweng le disebediswa tse ngata, bana hangata ba natefelwa ke ho papala ka dintho tsa kamehla le dintho tse iketseditsweng lapeng. Papadi ke tsela eo bana ba ithutang ka yona hae le sekolong. Ha se ntho eo bana ba e etsang feela ka 'nako ya bolokolohi' kapa ha titjhere a le siyo.

Baithuti ba hloka menyetla e mengata ya ho:

- ★ sibolla tikoloho ya bona ba sebedisa dikutlo tsa bona, mohl. diketsahalo tse sebedisang mmele tse etswang ka ntle tse kang ho palamela le ho matha, kapa dipapadi tse nang le melawana e lokelang ho latelwa tse kang sekotjhe le dipapadi tsa bolo
- ★ fuputsa le ho rarolla mathata, mohl. ho sebedisa disebediswa tsa ho aha ho etsa tora, kapa ho sebedisa metsi le santa ho tlatsa ditsheho
- ★ ikwetlisa ka seo ba seng ba se tseba kapa ba kgonang ho se etsa, mohl. ho papala dipapadi tse hlophisitsweng tse kang papadi ya *Snakes and Ladders* kapa didomino.

Mefuta e mehlano ya ho papala

Bafuputsi ba hlwaile mefuta e mehlano ya ho papala e ka bonwang ditsong tsohle le e tshhetsang kgolo ya ngwana mmeleng, phedisano, maikutlong le kelellong.

- ★ **Papadi ya mmele** e kenyeletsa boithapallo ba mmele, ho sebedisa mesifa e menyane le papadi ya ho kwebetellana. E bohlokwa bakeng sa ho tsamaisana ha mesifa e menyane le e meholo mmeleng le bakeng sa ho matlafatsa mmele ho ba le mamello.
- ★ **Ho papala ka dintho** ho kenyeletsa ho sibolla, ho fuputsa le ho etsa diteko ka dintho tse fapaneng moo ba phelang. Sena se hodisa bokgoni ba bona ba ho nahana le ho rarolla mathata.
- ★ **Ho papala ka ho etsa matshwao** ke ha bana ba sebedisa dibapadiswa, dintho, ditshwantsho, metako kapa ba etsa matshwao a mang bakeng sa ho emela dintho tse itseng bophelong.
- ★ **Papadi ya bonketsisane le ho tshwantshisa maemo a bophelo** e kenyeletsa ho apara diaparo tse itseng le ho iketsa eka o motho eo. Sena se hodisa ntshetsopele ya kelello le ya phedisano mme se thusa bana ho kgona ho laola boitshwaro ba bona le ho nahana ha bona.
- ★ **Dipapadi tse nang le melawana** di kgothaletsa bana ho latela melawana ya papadi, le ho ithuta ho abelana le ho sielana dibaka tsa ho etsa ho hong esitana le ho thusana.

TLELOSARI

matshwao

dintho tse emelang ntho e itseng, jwaloka letshwao la nomoro, lepetjo kapa letshwao la tsela

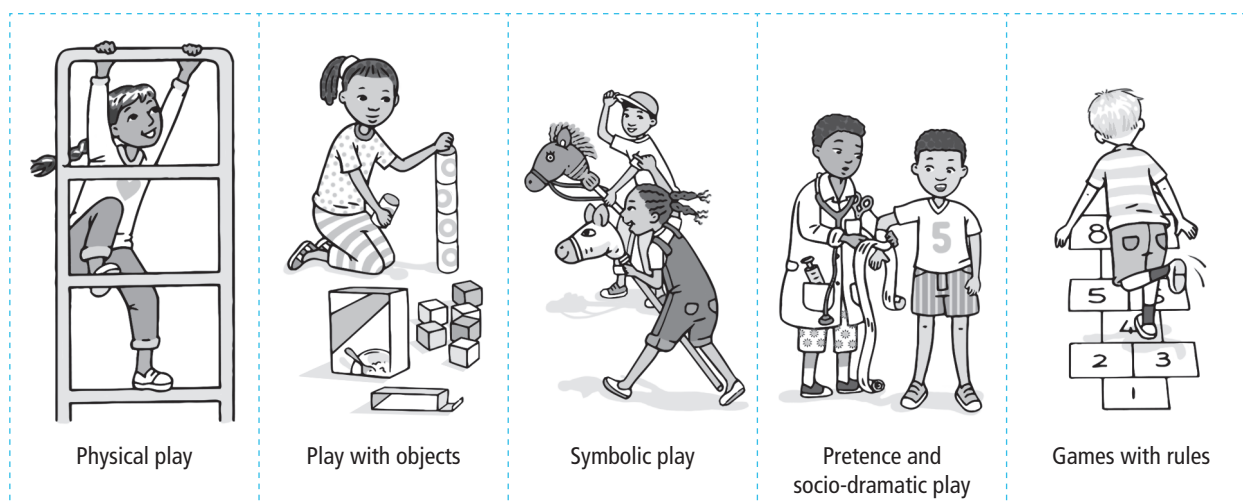


Figure 13 Types of play

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.

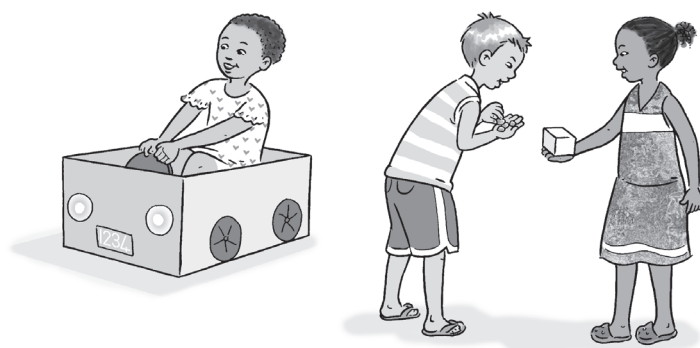
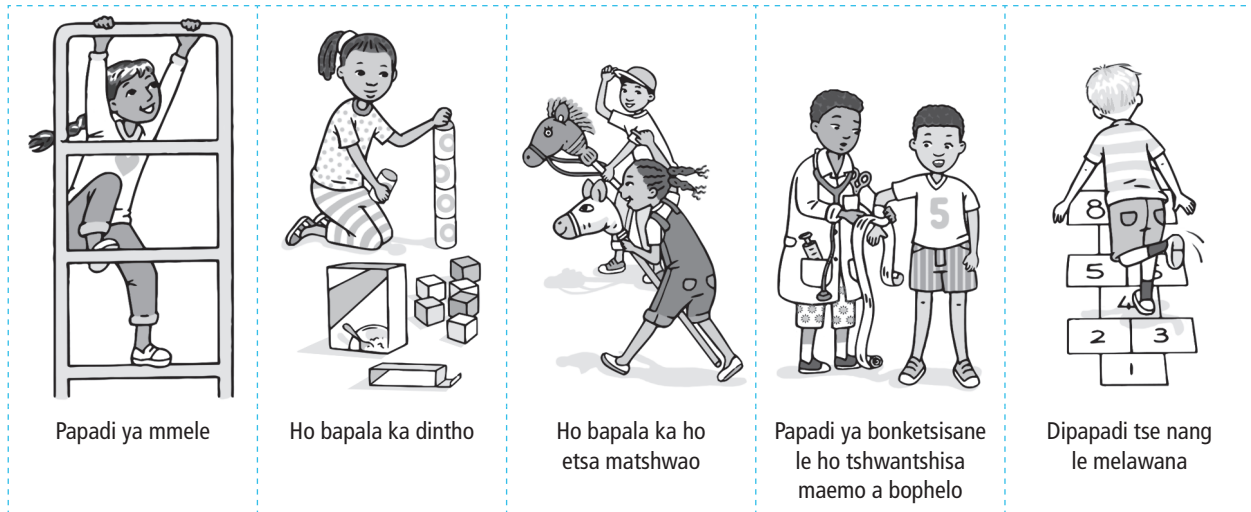


Figure 14 A cardboard box can represent a car, a wooden block can represent an apple and stones can represent money.

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.



Papadi ya mmele

Ho papala ka dintho

Ho papala ka ho etsa matshwao

Papadi ya bonketsisane le ho tshwantshisa maemo a bophelo

Dipapadi tse nang le melawana

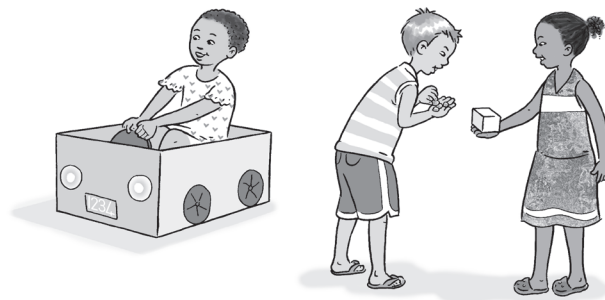
Setshwantsho sa 13 Mefuta ya ho papala

Mokgwa o theilweng papading

Mokgwa o theilweng papading bakeng sa ho ruta le ho ithuta o eellwa hore ka nako e nngwe bana ba ithuta hantle ka ho fetisisa ha ba etsa diketsahalo tsa ho papala ka bolokolohi tse qalwang ke bana ntle le seabo sa motho e moholo. Ka nako tse ding bana ba ithuta hantle haholo diketsahalong tsa papadi tse tataiswang ke titjhere bakeng sa tlelase yohle kapa dihlotshwana. Lenaneo le rerilweng hantle la ho ruta le ho ithuta le lokela ho kenyeletsa tekatekano ya mefuta yohle e fapaneng ya diketsahalo tsa ho papala.

Ho ithuta mareo a mmetse ka ho papala

Ho papala hangata ho kenyeletsa bana ba nkang dikarolo tsa batho ba baholo. Ho etsa mohlala, ba ka nna ba etsisa batho ba baholo ha ba pheha dijo, kapa mokganni wa sefofane ha a fofisa sefofane, kapa titjhere ha a ruta bana. Dipapading tsena, hangata ba sebedisa dintho tse tikolohong ya bona mme ba etse eka ke dintho tse ding, mohl. boloko ba patsi ba ho aha 'bo fetoha' boto ya ho kgabella bakeng sa ho kgabela meroho. Mofuteng ona wa papadi, bana ba sebedisa ntho e le nngwe ho 'emela' ntho e nngwe.



Setshwantsho sa 14. Lebokoso la khateboto le ka emela koloi, boloko ba patsi bo ka emela apole mme majwe a ka emela tjhelete.

Ha bana ba papala le ho taka ba sebedisa dintho le ditshwantsho ho emela dintho tsa nnete bophelong. Ena ke qaleho ya ho ithuta hore matshwao a emela dintho tsa nnete. Ba ithuta:

- ★ hore motako wa batho ba babedi o ka emela batho ba babedi ba nnete.
- ★ hore matshwao a ka emela dintho tse ding, mohl. '2' e emetse dintho tse pedi mme sena e ka ba dintho dife kapa dife tse 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

- ★ mabapi le menahano le mehopollo, mohl. ho etsa kgatiso ka boloko le ho bua ka sebopeho se hatitsweng ho thusa bana ho elellwa makgetha a kgutlonnetsepa.
- ★ kamoo dintho di **amanang** le tse ding, mohl. ditshelo tse ding di kgona ho kena ka hara tse ding, diboloko tse ding di ka tshehetsa diboloko tse ding, dibapadiswa tsa ho aha di na le dikotwana tse hokelehang mmoho empa ha se kaofela tse kgonang ho etsa jwalo.

TLELOSARI

amana
kamoo dintho
le mehopollo di
hokahanang ka teng

Ho na le diketsahalo tse ding tse ngata tse phahamisang ho ithuta mmetse. Mehlala e meng ke ena.

- ★ Ha baithuti ba sebedisa ditshelo tse boholo bo fapaneng, lehlabathe le metsi ho aha diqhobosheane (dikhasele) tsa lehlabathe, ba sibolla mareo a mothamo (feta/tlase), boholo (kgolo/nyane) le bongata (ngata/mmalwa).
- ★ Dipapadi tse kang sekotjhe le kgati di kgothaletsa bana ho sebedisa ho bala dintho le ho elellwa dipaterone.
- ★ Bana ba ka sibolla sebopeho le boholo ba dintho ka ho kenya dintho (tse kang mabokoso le dibolo) ka hara 'mokotlana o phopholetswang', mme ba kgethe ntho e le nngwe ba e hlalose.



Diketsahalong ...



Hlophisa diketsahalo tse kgahlang baithuti mme o etse hore ba be le thahasello mabapi le mmetse.

- 👏 Kgothaletsa papadi ya monahano ka ho qala papadi e itseng, mohl. bea ditulo ka mola ho etsa terene. Jwale kopa moithuti e mong ho ba ka pele jwaloka mokganni wa terene kapa ho ba setulong sa bobedi kapa sa boraro jwaloka mopalami. Ka tsela ena, baithuti ba natefelwa empa ba bile ba ithuta dikgopolo tse kang boemo le tatelano ya dinomoro.
- 👏 Kenella le wena mme o nke seabo diketsahalong le baithuti ha ba ntse ba bapala. Bontsha ho natefelwa le seabo sa hao ka ho bua seo o se nahanneng le ka ho bua ka se etsahalang moo, mohl. 'Ke tlatsitse dikopi tse tharo ka metsi – nngwe, pedi, tharo. Jwale ke se ke tlatsitse e nngwe, bonang, di se di le nne. Bonang feela hore di eme hantle jwang moleng!' Puisano ke tsela ya bohlokwa ya ho ruta puo ya mmetse baneng.
- 👏 Lemoha kamoo baithuti ba buang ka mehopollo ya bona mabapi le ho bala dintho, ho kopanya le ho abelana nakong ya bona ya ho bapala, mme o phete tseo ba di fumanang hore ba di utlwe, mohl. 'O badile difaha tse hlano tse kgubedu mme wa bala difaha tse hlano tse bolou. Ha re baleng mmoho hore o se o ena le difaha tse kae. O nepile, ke difaha tse leshome.'
- 👏 Thusa bana ho nahana ka matshwao nakong ya papadi ya monahano. Hlahisa kamoo ntho e le nngwe e ka emelang ntho e nngwe, mohl. 'Le ka phethola tafole yane la e shebisa hodimo mme la e etsa sekepe.'

4. Ntlhatheo ya mekgahlelo

Tlhaloso

Bokgoni le dikgopolo di ahellana hodimo. Sena se bitswa **tswelopele kgolong**. Baithuti ba aha tsebo ya bona hodima seo ba seng ba se tseba le seo ba kgonang ho se etsa. Ho ruta ho nepahetseng ho itshetlehile ho titjhere ha a qala ka ho fumana pele seo bana ba seng ba se tseba le ho se utlwisa, mme ebe o sebedisa diketsahalo le maemo a letsatsi le letsatsi ho ahella hodima seo ho ba thusa ho ithuta ka tsebo e ntjha le bokgoni bo botjha.

TLELOSARI

tswelopele kgolong
tatelano eo ka yona
bokgoni le dikgopolo
di ahellanang hodimo

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.

Moithuti ka mong ka tlelaseng ya hao o tla be a ena le boitsebelo bo fapaneng. Sena se bolela hore kaofela ha bona ba maemong a fapaneng a qalo Kereiting ya R. Tsebo ya pele ya moithuti ka mong ke ntlha ya qalo bakeng sa seo a tlang ho ithuta sona. Baithuti ba ka sebedisa seo ba seng ba se tseba ho ithuta mareo a matjha a mmetse le bokgoni.



Diketsahalong ...



- Hlophisa dipapadi le diketsahalo tse loketseng bakeng sa ho fumana tsebo eo baithuti ba seng ba ena le yona.
- Shebella seo baithuti ba se etsang le ho se bua ha ba ntse ba bapala, le kamoo ba laolang diketsahalo tse fapaneng.
- Rekota matla le ditlhoko tsa moithuti ka mong.
- Hlophisa diketsahalo tse ntjha tse ahellang hodima tsebo ya pele le kutlwisiso ya jwale ya moithuti ka mong.

Tse ding mabapi le ntlhatheo ya maemo

Phapano

Baithuti phaposing ya Kereiti ya R ba dilemong tse lekanang kaofela, empa e mong le e mong o na le botho, ditlhoko, bokgoni, matla le diphephetso tse ikgethileng. Ba fapana ka:

- ★ tseo ba kopanang le tsona malapeng a bona
- ★ tikoloho ya botjhaba ba bona
- ★ tikoloho ya maemo a bona a phedisano le a moruo
- ★ boemo ba bona ba puo
- ★ dithahasello tsa bona
- ★ tsebo ya bona ya pele
- ★ ho lokela ha bona ho ithuta
- ★ lebelo leo ba hlokang ho ithuta ka lona
- ★ tshetso eo ba e hlokang ho matitjhere le ba bang bakeng sa ho ithuta.

Matitjhere a lokela ho tswela pele ho lemoha le ho rekota kgatelopele le tswelopele ya moithuti ka mong ho mmetse. Phapano e bolela hore seo o se rutang le mokgwa oo o se rutang ka ona se hloka ho lemoha bokgoni bo fapaneng kapa maemo a fapaneng a kgolo ho baithuti ba hao.

Ho sebedisa mokgwa ona, matitjhere a hloka ho shebella moithuti ka mong ka nako ya diketsahalo mme ba hlokomele seo a se utlwisisang le hore ke eng eo a kgonang ho e etsa ka katleho, mme ebe ba sebedisa tlhahisoleseding ena ho hlophisa diketsahalo le ho tshetsetsa baithuti. Baithuti ba bang ba ka nna ba utlwisisa mohopolo o motjha o hlahiswang ketsahalong, ka tshetsetso e nyane feela e tswang ho titjhere. Baithuti ba bang ba ka hloka nako e ekeditsweng, dipontsho tse ding, mehlala e meng le tshetsetso e eketsehileng e tswang ho titjhere bakeng sa ho fihlella boemo bo lekanang ba kutlwisiso.

A ko nahane ka mohlala wa baithuti phaposing ya Kereiti ya R ba ithutang ka sehlooho se tshwanang kaofela ha bona – boemo ho sebaka (hodima/ka tlasa, ka pela/ka mora).

- ★ Baithuti ba bang ba tla utlwisisa phapang pakeng tsa maemo ana esitana leha titjhere a ka hlalosa hanyane ka nako e kgutshwane. E se kgale ba tla be ba loketse ho tswela pele ho ya ho kgopolo e latelang – maemo ho dibaka tse fumanwang ditshwantshong.

- ✦ 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'.

- ★ Baithuti ba bang ba ka hloka nako e eketsehileng le tihalošo ho tswa ho titjhere ha ba ntse ba sebetsana le diketsahalo. Hape ba tla fetela ho kgopolo e latelang empa ho tla ba nka nako e teletsana mme ba tla hloka tshehetso e fetang.



Diketsahalong ...



O ka sebedisa phapano ha o ruta ka ho:

- 👤 elellwa ho tshwana le diphapang ka hara baithuti ba hao
- 👤 ho hlophisa tsela e ntle ka ho fetisisa ya ho ruta moithuti ka mong ho ya ka bokgoni ba hae
- 👤 ho fetola se rutwang e le hore se tle se elellwe bokgoni, **bokgoni ba kutlwisiso ka dikutlo**, tsebo ya pele, dithahasello le tikoloho ya botjhaba ya baithuti bohle
- 👤 ho lokisa, moo ho hlokehang, seo o lebelletseng hore moithuti ka mong a be a ithutile sona qetellong ya ketsahalo
- 👤 ho nahana ka botho ba baithuti esitana le bokgoni ba bona ha o etsa qeto ya kamoo o tla bea baithuti ka dihlotshwana ele hore ba tle ba ithute ho ba bang le ho tshehetsana dihlotshwaneng tsa bona
- 👤 ho sebedisa diketsahalo le disebediwa tse loketseng
- 👤 ho ruta baithuti ba fapaneng ka dikgahla tse fapaneng, mohl. baithuti ba bang ba ka hloka nako e eketsehileng ho phethela diketsahalo kapa ho araba dipotso ho feta baithuti ba bang
- 👤 ho sebedisa diketsahalo tsa dihlotshwana ele hore o kgone ho shebana le baithuti ka bonngwe le ho ba fa tshehetso e lokelang ha ba e hloka
- 👤 ho hlophisa diketsahalo bakeng sa baithuti ba hlokang mesebetsi e ba fang phephetso.

TLELOSARI

bokgoni ba kutlwisiso ka dikutlo

ho sebedisa dikutlo tsa hao bakeng sa ho bokella tlhahisoleseding mabapi le tikoloho ya hao, ho etsa mohlala: ho bona, ho utlwa, ho thetsa, ho nkgella, le ho latswa

5. Ntlhatheo ya kgokahano

Tihalošo

Ho ithuta ho kenyeletsa ho buisana le ho abelana ka mehopolō. Baithuti ba lokela ho kgothaletswa ho bua le titjhere le bona ba buisane mabapi le seo ba se nahanneng le seo ba se etsang. Ho abelana ka mehopolō, ho botsa dipotso le ho hlalosa seo ba se etsang ho ba thusa ho bopa kutlwisiso ya bona ya dikgopolo. Hape ho ba thusa ho ithuta ho sebedisa puo ya mmetse ka boitshepo.



Diketsahalong ...



- 👤 Moya wa ka phaposeng ya borutelo o hloka ho ba o phuthulohileng ele hore baithuti ba ikutlwe ba lokolohile ho ka botsa dipotso le ho abelana ka mehopolō ya bona ha ba ntse ba tswela pele ho rarolla mathata.
- 👤 Baithuti ba banyenyane ba hloka ho rutwa ho sebedisa mantswe a mmetse ka nepo ele hore ba kgone ho a sebedisa bakeng sa ho hlahisa mehopolō le menahano ya bona, mohl. ho ithuta ho hlalosa bolo e le 'tjhitja' ho e na le hore ke 'sedikadikwe'.



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.



Baithuti ba rata ho re, 'nyane haholo'. Hatella puo ya mmetse ka ho phetapheta seo moithuti a se buileng, empa sebedisa 'kgutshwane haholo' ho ena le seo.

Setshwantsho sa 15 Matitjhere a ka tataisa bana ho sebedisa puo ya mmetse.

Tse ding mabapi le ntlhatheo ya kgokahano

Dipuisano: Ho mamela le ho bua ka hloko

Re ithuta hantle ka ho fetisisa ha re etsa ho hong mme re bua le motho e mong, ka bobedi kapa ka dihlotshwana. Baithuti ba hloka ho fumana bokgoni ba ho buisana mme ba hloka ho ba le tsebo ya ho ba karolo ya puisano. Ba lokela ho ithuta ho mamela ka hloko ho seo motho e mong a se buang, mme ba arabe ka tsela e nepahetseng. Sena se bolela hore ba hloka ho kgona ho:

- ★ mamela se buuwang
- ★ arabela ka tsela e loketseng
- ★ fana ka dibaka tsa ho bua le ho mamela.



Diketsahalong ...



Thusa baithuti ho ba le bokgoni ba ho mamela le ho bua hantle ka ho ba fa menyetla ya ho:

- 👏 kenella moqoqong kapa dipuisanong
- 👏 mamela ka hloko ka ho tsepamisa maikutlo
- 👏 abelana kapa ho hlahisa menahano le mehopolo ya bona
- 👏 fana ka dikarabelo le ditlaleho
- 👏 botsa dipotso
- 👏 latela ditaello.

Ha matitjhere a mamela baithuti ka hloko, baithuti:

- ★ ba kgothalla ho abelana ka mehopolo, dipotso, mathata le maikutlo a bona
- ★ ba ikutlwa eka titjhere o na le thahasello ho bona mme o kgathalla ho bona ba utlwisisa ho hong
- ★ ba ikahela bokgoni ba bona ba ho mamela ka hloko.

Ho arabela ka tsela e nepahetseng bakeng sa ho hong ke karolo ya bohlokwa ya dipuisano, le ya ho ruta le ho ithuta. Ha baithuti ba fumana karabelo e nepahetseng ho dipotso tsa bona kapa mehopolo ya bona, ba dumela hore mehopolo ya bona e bohlokwa mme e na le boleng. Hape hona ho ba fa mohlala wa ho arabela ka tsela e nepahetseng.



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.



Diketsahalong ...



O ka arabela ka tsela e loketseng ho baithuti ba hao ka ho:

- se ba dumelle ho ikutlwa eka ba botsitse potso ya bothoto
- pheta potso eo ba e botsitseng ka nako tse ding, ele hore ba tle ba tsebe hore ba mametswe
- ba kgothaletsa ho botsa dipotso tse hlakileng ka ho lokisa e nngwe ya dipotso tsa bona, kapa ho ba kopa hore ba e phete ka tsela e fapaneng
- leka ho araba dipotso tsa bona ka ditsela tse nang le moelelo ho bona, mohl. ka ho sebedisa seo ba seng ba se tseba, le/kapa ka ho sebedisa mehlala e tswang maphelong a bona.

Seabo sa puo mmetseng

Bohle re sebedisa puo ho buisana. Re e sebedisa ho abelana mehopolole tlhahisoleseding, le ho hlakisa mehopolole e **ka hloohong**. Puo le yona e bohlokwa bakeng sa mmetse. Re a e hloka bakeng sa ho hlakisa, ho utlwisisa, ho botsa dipotso, ho nahana, ho fana ka mabaka, ho hlalosa le ho bontsha mareo a mmetse.

Puo ya mmetse e kenyeletsa mantswa le matshwao ao re a sebedisang ho buisana kapa ho abelana ka mehopolole kapa mareo a mmetse. Ka nako e nngwe re sebedisa puo ya kamehla, empa puo ya mmetse e **tobile** mme e totobetse. O ka bala ho feta mona mabapi le tsebo ya kamehla le tsebo ya sekolong maqepheg ana 16–23. Mehlala e meraro ya sena ke ena.

- ★ Ka puo ya kamehla lentswe lena 'halofo' le ka sebediswa ho hlalosa ntho e arotsweng ka dikarolo tse ka bang pedi tse lekanang. Leha ho le jwalo, ho mmetse, 'halofo' e bolela dikarolo tse pedi tsa ntho e felletseng e arotsweng ka ho lekana. Dikarolo tse pedi tsena di lekana hantle ka boholo kapa ka lenane.
- ★ Ka puo ya kamehla re ka re, 'Titjhere o moholo.' Leha ho le jwalo, ho mmetse re ne re ka re, 'Titjhere o molelele', mme ra metha bophahamo ba hae, ra bala 'nngwe', 'pedi', 'tharo', jwalojwalo ha re ntse re metha.
- ★ Ka puo ya kamehla re ka re kgutlotharo ke sebopeho se motsu. Leha ho le jwalo, ho mmetse re ka re kgutlotharo e na le mahlakore a mararo a tsepameng le dihuku tse tharo.

TLELOSARI

ka hloohong

mhopolo, monahano
kapa maikutlo

tobile

hantlentle, nepo

Nina o monyane.



E, o mokgutshwane, mme wena o motelele ho mo feta.

Setshwantsho sa 16 Puo ya mmetse e tobile.

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.

Ho ntshetsa pele puo ya bana ya mmetse

Karolo ya ho ithuta mareo a matjha e kenyeletsa ho ithuta puo e ntjha. Matitjhere a hloka ho tataisa baithuti ha ba qala ho utlwisisa butle le ho sebedisa puo e ntjha ya mmetse sekolong le maphelong a bona a kamehla. Ba hloka ho tsebisa baithuti ba Kereiti ya R tlotlontswe e nepahetseng ya mmetse e tlang ho ba dumella ho latela ditaello, ho botsa dipotso le ho bolela seo ba se nahanang le ho fana ka mabaka. Baithuti ba fumana puo e ntjha le mmetse ka nako e le nngwe. Ha ba ntse ba ithuta mantswe a matjha, ba ithuta dikgopolo tse ding, ebe ba ithuta mantswe a mangata le dikgopolo tse ding tse ngata, mme kahoo ba atleha le ho feta mesebetsing ya bona ya mmetse.



Diketsahalong ...



Baithuti ba tsebang moelelo wa mantswe ana 'tjhitja' le 'sephara' ba ka hlalosa makgetha a mmetse a dintho. Ho etsa mohlala, ka ho bapala ba ka lemoha hore dintho tse tjhitja di a thetaha mme dintho tse sephara di a thella. Baithuti ba sa tsebeng mareo ana 'tjhitja' kapa 'sephara' ba ka etsa feela diqeto tse haellang mabapi le dintho tseo ba di sibollang – mabokoso a thella mme dibolo di a thetaha. Baithuti bana ba hloka ho kgothaletswa ho ithuta puo e ntjha e loketseng ho atolosa kutlwisiso ya bona ya mantswe le tsebo.



Setswantsho sa 17 Ho ntshetsa pele puo ya mmetse ka papadi

Kgothaletsa baithuti ho sebedisa puo ya bona ya lapeng haholo kamoo ba ka kgonang. Sena se thusa ho ntshetsa pele bokgoni ba bona ba puo ka kakaretso le bokgoni ba ho nahana. Afrika Borwa, baithuti ba bangata ba Kereiti ya R ba ithuta ka puo ya bobedi kapa ya boraro. Ho ruta mmetse ho ka thusa ho ntshetsa pele bokgoni ba bona ba ho sebedisa dipuo tsena ha ba ka fuwa menyetla ya ho bua ka seo ba se etsang nakong ya diketsahalo tsa mmetse, ho abelana ka mehopolo ya bona le ho buisana ka mabaka a bona.

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)

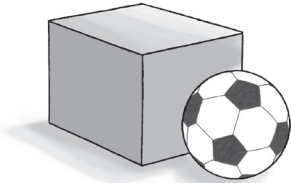


Figure 20

★ shape (round, square)



Figure 21

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

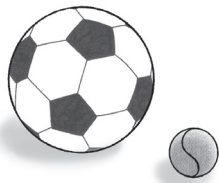


Figure 22

★ size (big, small)

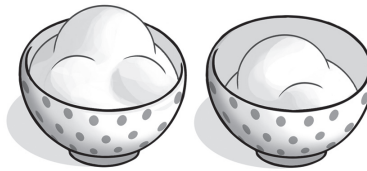


Figure 23

★ 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.

Ho ithuta tlotlontswe ya mmetse e nepahetseng

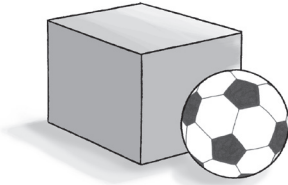
Baithuti ba hloka tlotlontswe ho bua le ho nahana ka mareo a mmetse.

Ho etsa mohlala, ba hloka ho tseba mantswe a kang ana ho hlalosa:



Setshwantsho sa 18

- ★ bongata (haholo, ho feta, ngata, mmalwa)



Setshwantsho sa 20

- ★ sebopelo (tjhitja, kgutlonnetsepa)



Setshwantsho sa 22

- ★ boholo (kgolo, nyane)



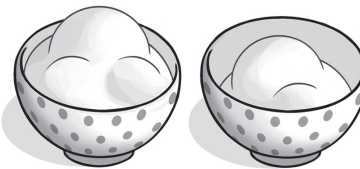
Setshwantsho sa 19

- ★ ho etsa dipalo (ho kopanya, ho tlosa)



Setshwantsho sa 21

- ★ boemo (-pele, -bobedi, -boraro, -ho qetela, pele ho, kamora, pakeng tsa)



Setshwantsho sa 23

- ★ mometho (ka hodimo ho, ka tlase ho, telele, sephara, tletse, boima, telele, kgutshwane, hoseng, bosiu)

Kgothaletsa baithuti ho sebedisa tlotlontswe ya mmetse ka ho e sebedisa le wena ha o bua le bona ka mareo a mmetse, le ka ho bua seo ba se buileng ka tsela e nngwe ya puo ya mmetse. Qetellong ya Karolo ka nngwe ya Dikahare ho Karolo ya 3 ho na le lenane le felletseng la tlotlontswe ya mmetse le tsamaellanang le Karolo ya Dikahare ka ho qolleha.



Setshwantsho sa 24. Kgothaletsa baithuti ho sebedisa tlotlontswe ya mmetse.

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.

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.

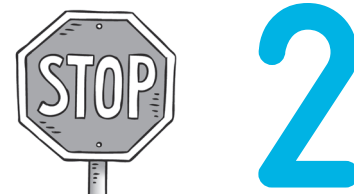


Figure 25 A stop sign and the numeral '2' are both symbols.

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.

Mmetse o tsepamisa maikutlo ho kamano pakeng tsa dintho. Baithuti ba hloka puo bakeng sa ho nahana le ho bua ka dikamano tsena, ho kenyeletsa:

- ★ dipapiso pakeng tsa dipokello tsa dintho (tse ngata, tse mmalwa, tse fetang, tse mmalwa ho feta)
- ★ papiso ya boholo le mometho (kgolo/nyane, telele ho feta/kgutshwane ho feta, boima ka ho fetisisa/bobebe ka ho fetisisa)
- ★ papiso ya dibopeho (mahlakore a mararo, mahlakore a mane, tjitja kapa kgopame)
- ★ boemo ho sebaka (ka pela, ka mora, ka tlasa, pela, pakeng tsa)
- ★ tatelano ya dintho (-pele, -ho qetela, -bobedi, e latelang, pele ho, kamora, pakeng tsa)
- ★ dipapiso pakeng tsa bongata ba dintho (ngata ho feta, tlase ho, lekana).

Ho utlwisisa le ho sebedisa matshwao

Matshwao a hohle moo re phelang. Matshwao ao baithuti ba a bonang tikolohong ya bona ya kamehla hangata a na le bobedi mantswe le disimbolo ho ona. Baithuti ba ithuta hore mantswe ana le matshwao a na le moelelo. Ho etsa mohlala, matshwao a o bontsha hore o tsele tsela neng kapa hore na ntho e itseng e ja bokae.

Bana ba banyenyane ba etsa diteko ka matshwao a ngotsweng ka metako ya bona le diteko tsa bona tsa ho ngola tsa pele ho nako. Kereiting ya R, ho utlwisisa puo ya mmetse ho aha motheo bakeng sa ho sebedisa matshwao a mmetse ka nepo.

Ho beha mabaka le ho noha

Baithuti hape ba hloka puo ho:

- ★ latela le ho tshwaela ho **mabaka** a motho e mong
- ★ hlalosa seo ba se nahanang le ho sebedisa sena ho **noha** se tlang ho etsahala kamora moo. Ba hloka puo ho hlalosa paterone le ho bolela se tlang ho etsahala kamorao haeba paterone e tswela pele.



2

Setshwantsho sa 25

Letshwao la 'ema' le nomoro ena '2' bobedi ke matshwao.

TLELOSARI

ho beha mabaka

monahano o tshhehetsang mohopolo kapa polelo e itseng

noha

ho bolela kapa ho lekanya se tlang ho etsahala nakong e tlang



Setshwantsho sa 26 Ho noha hore ke sebopeliso sefe se latelang ho tatelano e itseng.



Diketsahalong ...



Ho kgothaletsa ntshetsopele ya puo ya mmetse, baithuti ba hloka menyetla e mengata ya ho:

- 👏 bapala
- 👏 ho qeta nako e itseng le batho ba baholo le ho buisana le batho ba baholo le bana ba bang
- 👏 ho buisana ka mehopololo ya bona le ho fana ka mabaka.



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 they 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



Setshwantsho sa 27 Papadi ke monyetla wa ho sebedisa puo ya mmetse.

Lemoha kamoo baithuti ba sebedisang puo ya mmetse ha ba:

- 👉 bua ka seo ba se etsang
- 👉 hlalosa tse ba etsahallang ka ntle ho sekolo, mohl. ho teka tafole ya dijo tsa mantsiboya, ho bapala papadi kapa ho hlalosa kamoo ba tlleng sekolong ka teng ho tswa hae
- 👉 iqapela mantswe ha ba eso ka ba tseba puo ya mmetse e nepahetseng bakeng sa ho hong, mohl. ba hlalosa huku jwaloka 'ntlha e hlabang' kapa ba bitsa 'leshome le motso o mong' jwaloka 'leshomenngwe'
- 👉 noha se tlang ho etsahala, mohl. 'Tora e tla heleha ha nka bea diboloko tse ding ka hodimo.'

6. Ntlhatheo ya tataiso

Tlhaloso

Matijhere a tataisa baithuti ho utlwisisa tsebo e ntjha. Ba hlophisa maemo a ho ruta le ho ithuta bakeng sa ho bopa menyetla bakeng sa baithuti ho tsepamisa maikutlo mesebetsing e itseng le disebedisweng ele hore baithuti ba kgone ho sibolla mohopolo mme ba abelane ka seo ba se nahanang mabapi le bothata ba mmetse. Matijhere a bontsha mohlala wa se lokelang ho etswa mme ba botsa dipotso tse tataisang ho thusa baithuti ho rarolla bothata boo. Sena ka nako e nngwe se bitswa **bokenadipakeng**. Ka bokenadipakeng, baithuti ba fumana tsebo e ntjha, ba ba le boitshwaro le mawa a ho rarolla mathata ao ba ka a sebedisang maemong a mang.

TLELOSARI

bokenadipakeng

ketsahalo ya kopanelo moo motho ya tsebang haholo kapa ya nang le bokgoni bo seng bo tswetse pele a tataisang ba bang ho ithuta ntho e ntjha



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.



Diketsahalong ...



Kamoo o ka sebedisang bokenadipakeng ka phaposing ya borutelo

1. Hlwaya hore ke mareo le bokgoni bofe boo baithuti ba seng ba bo tseba mme o hlophise ketsahalo e loketseng.
2. Efa baithuti ketsahalo e shebaneng le lereo le letjha kapa bokgoni bo botjha.
3. Etsa mohlala wa ketsahalo kapa bontsha baithuti kamoo e lokelang ho phethelwa ka teng.
4. Efa baithuti tlaleho ka seo ba se etsang.
5. Fana ka mehlala kapa dikgakollo tse itseng ho thusa baithuti, empa o se ke wa ba fa tharollo.
6. Qholotsa baithuti ka ho botsa dipotso tse mabapi le seo ba se etsang.
7. Kgothaletsa baithuti ho botsa dipotso ele hore ba tle ba etse dikamano tse ntjha le ho itshibollela dintho tse ntjha.
8. Efa baithuti ketsahalo e nngwe eo ba e phethelang ba le bang, ba sebedisa kgopolo kapa bokgoni tseo ba ithutileng tsona. Ketsahalong ena, ba lokela ho ikwetlisa ho sebedisa bokgoni kapa tsebo e ntjha ka ditsela tse fapaneng. Ba tataise le ho ba tshehetsa, empa ka tsela e etsang hore ba iketsetse ka bobona.
9. Efa baithuti diketsahalo tse ding hape mme o ikgule butlebutle tataisong le tshehetsong ya hao, o ba dumelle ho iketsetsa dintho.

Tse ding mabapi le ntlhatheo ya tataiso

Mekgwa ya ho ruta

Ho ruta ho kenyeletsa tshebediso ya mekgwa e fapaneng ka dinako tse fapaneng:

- ★ Taelo e tobileng e kenyeletsa puisano e nyane haholo. Baithuti ba ka botsa dipotso, empa tsena e be feela tse mabapi le ho latela ditaello. Taelo e tobileng e lokela ho ba karolo e nyane haholo ya ho ruta.
- ★ Taelo e tataiswang e kenyeletsa matitjhere le baithuti ba sebetsang mmoho ho rarolla bothata kapa ho ithuta kgopolo kapa bokgoni bo botjha. Titjhere o fana ka tataiso le tshehetso ho fihlela baithuti ba kgona ho etsa ketsahalo ka bobona. Ho *Grade R Maths* sena se bitswa ketsahalo e tataiswang ke titjhere.

Diketsahalo tse hlophisitsweng

- ★ Diketsahalo tse hlophisitsweng ke diketsahalo tsa ho ruta le tsa ho ithuta, hangata di tataiswa ke titjhere. Di shebane haholo le lereo le itseng la mmetse le bokgoni.
- ★ Lenaneong la *Grade R Maths*, diketsahalo tse hlophisitsweng di arotswe ka:
 - diketsahalo tsa tlelase yohle
 - diketsahalo tsa dihlotshwana tse tataiswang ke titjhere
 - diketsahalo tse ikemetseng tsa dihlotshwana
 - diketsahalo tsa kgetho ya bolokolohi.

Ho botsa dipotso

Mawa a lokileng a ho botsa dipotso a bohlokwa bakeng sa ho ruta. *Grade R Maths* e kgothaletsa matitjhere ho sebedisa dipotso tse dikarabo di ngata tse susumeletsang ho nahana ka mmetse. Mefuta ena ya dipotso e fumanwa ho mathata le diphuputso. Dipotso tse dikarabo di ngata hape di thusa matitjhere ho bokeletsa tlhahisoleseding mabapi le boemo ba baithuti ba kutlwisiso le tsebo.

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.

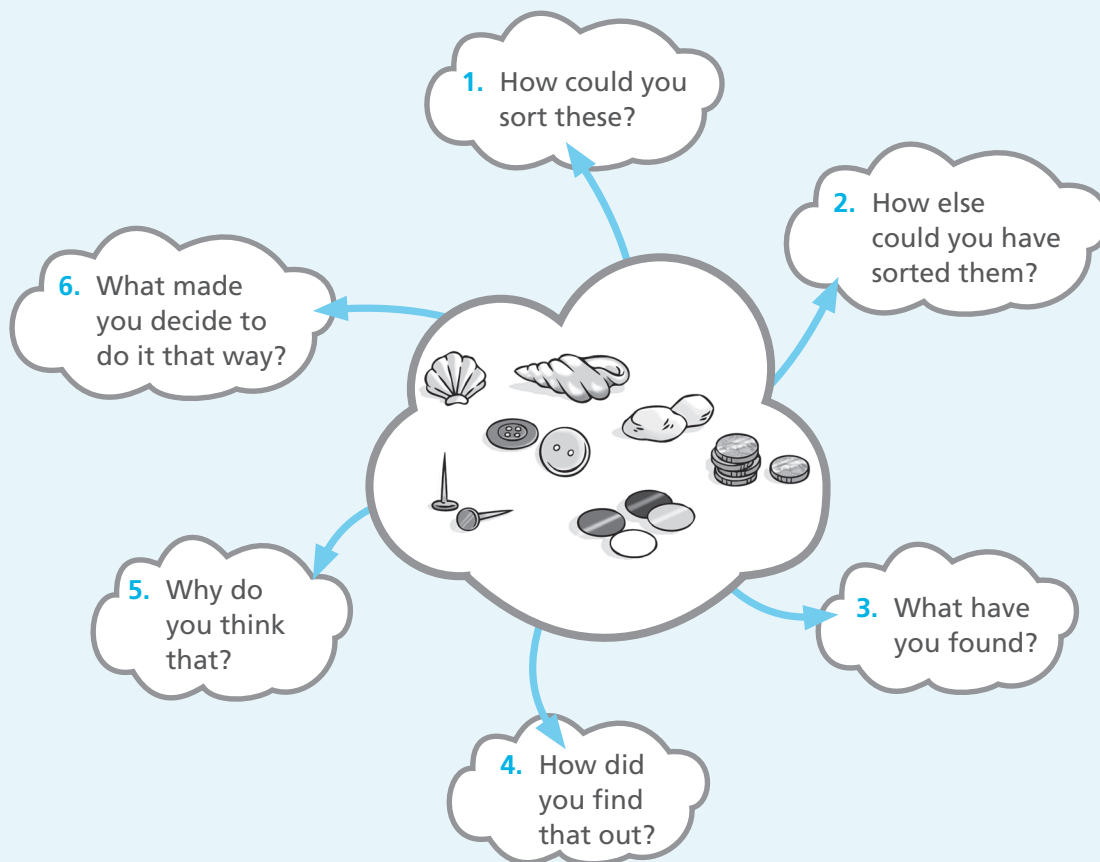


Figure 28 Open-ended questions

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.

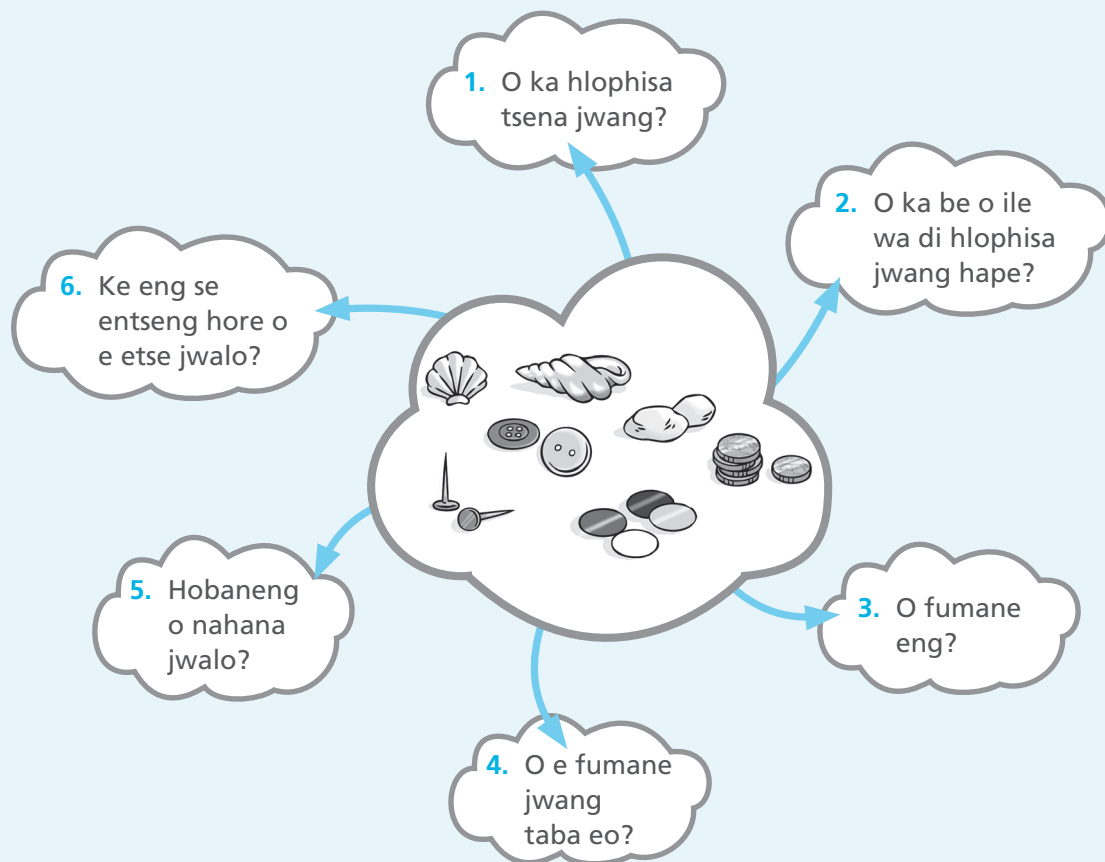
Dipotso tse karabo e nngwe (Dipotso tsa boemo bo tlase)	Dipotso tse dikarabo di ngata (Dipotso tsa boemo bo hodimo)
Dipotso tse nang le karabelo e le nngwe feela kapa ya 'e'/'tjhe'.	Dipotso tse nang le dikarabo tse fetang bonngwe tse ka nnang tsa nepahala.
Mohlala: Na ntho ena ke kgutlotharo? Mohlala: Na ntho ena ke kgutlotharo kapa kgutlonnetsepa?	Mohlala: O ka mpoella eng ka dikgutlotharo? Mohlala: Kgutlotharo e fapana jwang le kgutlonnetsepa?



Diketsahalong ...



- Botsa dipotso tse dikarabo di ngata tse fang baithuti menyetla ya ho nahana ka boikemelo le ho bolela seo ba se nahanneng. Qoba ho sebedisa dipotso tsa karabo e le nngwe tse shebaneng feela le ho hopola dintlha, kapa tse nang le dikarabo tsa 'e'/'tjhe' feela.
- Efa baithuti nako e itseng ya ho leka ho araba potso ele hore ba kgone ho nahana, ho hlophisa mehopolu ya bona mme ba e behe hantle ka mantswe.



Setshwantsho sa 28 Dipotso tse dikarabo di ngata

Ho rarolla bothata

Baithuti ba kopana le mathata ao ba sa kgoneng ho a rarolla hanghang. Matitjhere a Kereiti ya R a lokela ho tshhehetsa baithuti ho fumana bokgoni ba ho shebana le mathata ana ka boikemelo bo eketsehileng. Sena se kenyetsa nako e lekaneng ya ho bua ka bothata boo, ho leka mehopolu e itseng, ho ithuta ka diphoso tsa bona, ho bapala ka bothata le ho fetola mehopolu ya bona ho ya ka diphuputso.



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.



Diketsahalong ...



- Baithuti ke bona ba buang ho feta.
- Baithuti ba kgothalletswa ho leka mehopolo e itseng mme ba etse diphoso.
- Baithuti ba abelana ka menahano ya bona le titjhere le baithuti ba bang.
- Matitjhere a mamela mehopolo ya baithuti.
- Dipotso tsa matitjhere hangata ke tse bulehileng mme di tataisa baithuti hore ba nahane.

7. Ntlhatheo ya kenyeletso

Tlhaloso

Ho hlompha **diphapang bathong** le kenyeletso ke ditokelo tsa bana. Di bohlokwa haeba re batla hore bana bohle ba ithute le ho hola ho fihlela bokgoning ba bona bo felletseng. Matitjhere a hloka ho elellwa boitsebo ba moithuti ka mong, ditlhoko le dithahasello tsa hae.

Phaposi ya borutelo e nngwe le e nngwe ya Afrika Borwa e na le diphapano. Ho na le bana ba bangata ba fapaneng mme e mong le e mong o tla le boitsebo ba hae, botho ba hae, bokgoni, ditabatabelo le tikoloho ya moo a tswang. **Kenyeletso** ke ketso ya ho netefatsa hore bana bohle, ho sa tsotellwe ho fapana ha bona, ba kenyeletswa diketsahalong tsa ka phaposing ya borutelo, haholoholo baithuti bao dibakeng tse ding ba ka qhelelwang ka thoko kapa ba kgethollwa. Ho se itekanele ke *le leng* la mabaka ao ka ona hangata bana ba qhelelwang ka thoko, empa sa bohlokwa ke hore, ditaba tsa phedisano, tsa maikutlo, tsa mmele le tsa boitshwaro le tsona di tlisa ditshita ho thuto. Matitjhere a nang le mohopolo wa kenyeletso, a amohela le ho thabela ho fapana ho teng ho baithuti ba bona.

Thuto e kenyeletsang bohle e bolela hore bana bohle ba kena sekolo ditlhaseng tse tshwanetseng dilemo tsa bona. Ba a amohelwa, ba kgothalletswa ho nka seabo dinthong tsohle tsa sekolo mme ba a tshehetswa hore ba ithute le ho fihlela bokgoni ba bona ka ho phethahala.

TLELOSARI

diphapang bathong

batho ba fapaneng ba nang le diphapang tse fapaneng, ho etsa mohlala, boitsebo, botho, bokgoni, ditabatabelo le moo ba tswang

kenyeletso

ketso ya ho netefatsa hore bana bohle, ho sa natswe hore ba fapane ho le hokae, ba kenyeletswa diketsahalong tsohle tsa ka phaposing ya borutelo



Diketsahalong ...



- Baithuti bohle ba na le tokelo ya ho ikutlwa ba kgethehile, ya ho nka seabo le ho kenyeletswa diketsahalong tsa phaposing ya borutelo le dipuisanong. Sena se kenyeletsa bana ba sa itekanelang mmeleng, ba nang le mathata a boitshwaro kapa ditshita tse ding tsa ho ithuta.
- Baithuti bohle, batswadi ba bona le basebetsi ba sekolong ba lokela ho amohelwa, ho kenyeletswa, ho tshwarwa ka tsela e se nang leeme le ho hlompheha ho sa natswe botjhaba ba bona, morabe, mmala, bong, boitsebo ba bong, tshekamelo ya tsa bong, bokgoni ba mmele kapa ba kelellong, tumelo kapa boemo ba tsa phedisano le moruo.

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.

Tse ding mabapi le ntlhatheo ya kenyeletso

Ditsela tse fapaneng tsa ho ithuta









Diphapano tsa batho ha se feela tse mabapi le makgetha a rona a mmele, ditumelo, kapa bodumedi, hape di ka nna tsa kenyeletsa kamoo re ithutang bokgoni bo botjha. Ha se bana kaofela ba ithutang ka tsela e tshwanang. Ho na le mefuta e fapaneng ya ditsela tsa ho ithuta tse loketseng moithuti ka mong. Ho etsa mohlala, ha se baithuti bohle ba ka latelang ditaello tsa titjhere ka ho mamela feela seo a se buang. Baithuti ba bang ba ka kgola molemo ka ho bona setshwantsho se emelang seo ba lokelang ho se etsa. Ba bang ba ka hloka ketso kapa ketsahalo e sebedisang matsoho hore ba utlwisise ka botlalo taelo kapa kgopolo.



Diketsahalong ...



Matitjhere a atlehileng a kgona ho hlwaya ditlhoko tsa ho ithuta tsa moithuti ka mong ka tlelaseng ya bona mme ebe ba fetola diketsahalo hore di tshwanele hantle ditlhoko tsa moithuti ka mong. Ditsela tse latelang tse robedi tsa ho ithuta di loketse ho ithuta le ho ruta Kereiting ya R:

-  Tsa pono (*Spatial*): Ho ithuta ka pono ho kenyeletsa tshebediso ya ditshwantsho kapa didayakeramo bakeng sa ho hopola tlhahisoleseding. Baithuti ba bang ba utlwisisa le ho hopola tlhahisoleseding ha bonolo ha e emetswe ke ditshwantsho kapa didayakeramo.
-  Tse mamelwang (*Aural-Musical*): Ho ithuta ka ho mamela ho itshetlehile ho ho mamela tlhahisoleseding bakeng sa ho utlwisisa ka botlalo le ho e hopola. Baithuti ba bang ba ithuta hantle ka ho fetisisa ha ba ka mamela titjhere, kapa pina kapa ntho e hatsitsweng.
-  Tsa molomo (Tsa puo): Ho ithuta ka tsa molomo ho kenyeletsa ho bua le ho hlahisa mehopoloy ya hao ka ho bua, le ho taka le ho ngola ho utlwisisa ka botlalo le ho hopola tlhahisoleseding.
-  Tsa mmele (Khaenesthetiki): Ho ithuta ka tsa mmele ho etsahala ha moithuti a nka seabo ketsahalong e sebedisang ditho tsa mmele, e etswang ka matsoho. Baithuti bana ba sebedisa mmele ya bona le kutlo ya ho thetsa (boamo) bakeng sa ho utlwisisa tlhahisoleseding.
-  Tsa kelello (Tsa mmetse): Ho ithuta ka tsa kelello ho kenyeletsa tshebediso ya monahano le ho beha mabaka bakeng sa ho utlwisisa tlhahisoleseding. Baithuti ba sebedisang dikelello ba sebedisa monahano mme ba batlana le mabaka ha ba ithuta dintho tse ntjha.
-  Tsa phedisano (Kamano ya batho): Ho ithuta ka tsa phedisano ho kenyeletsa ho ithuta mmoho le ba bang. Baithuti ba bang ba kgetha ho ithuta ba le ka hara sehlopha kapa mmoho le motswalle.
-  Bomong (Ka hara motho): Ho ithuta ka bomong ho kenyeletsa ho ithuta ka bowena o le mong. Baithuti ba bang ba sitiswa ke ba bang.
-  Ka tsela ya tlhaho (Tlhaho): Ho ithuta ka tsela ya tlhaho ho etsahala tlhahong. Baithuti ba bang ba ithuta le ho utlwisisa hantle ho feta ha ba kgona ho sibolla le ho batlisisa tlhaho ka ho tswela ka ntle, jwaloka ho shebella diphoofolo, temo, ho hlokomela lefatshe kapa ho sibolla tikoloho.

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.

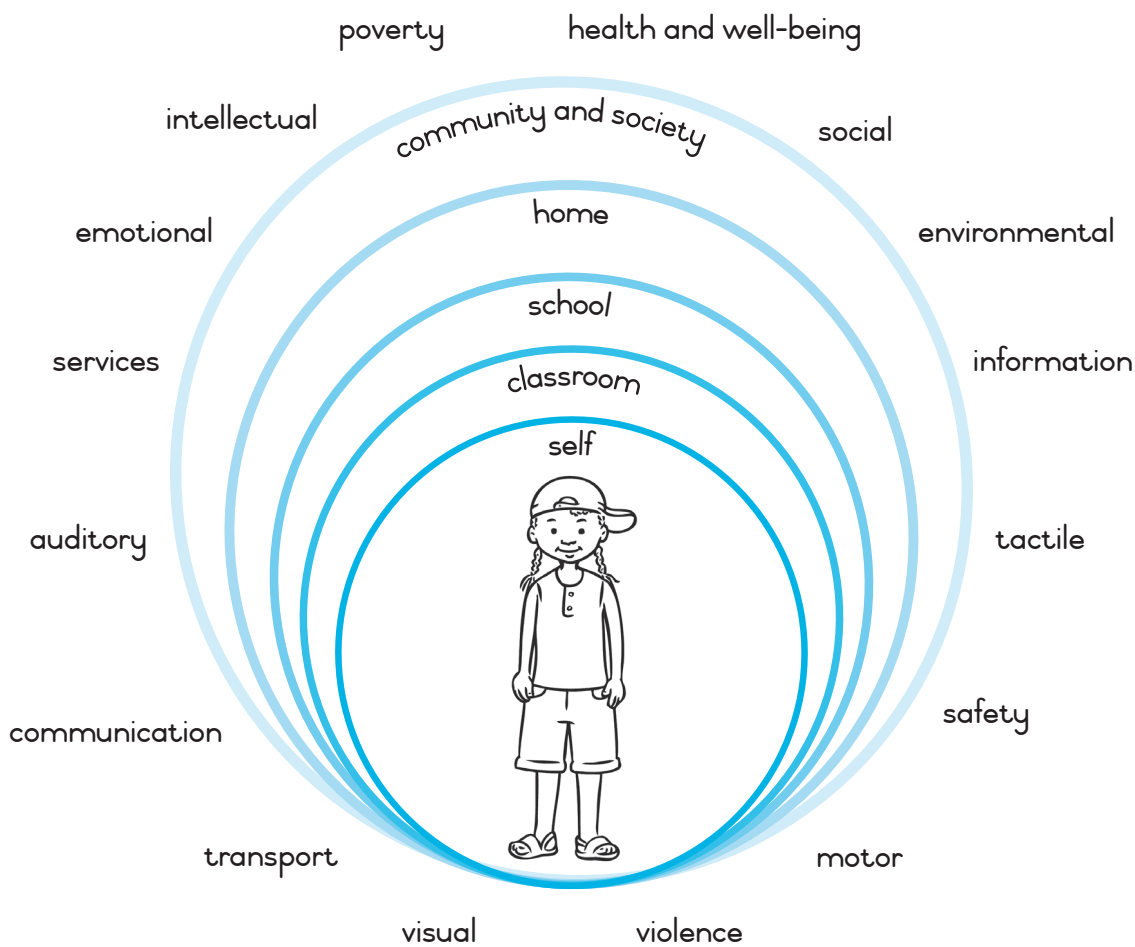


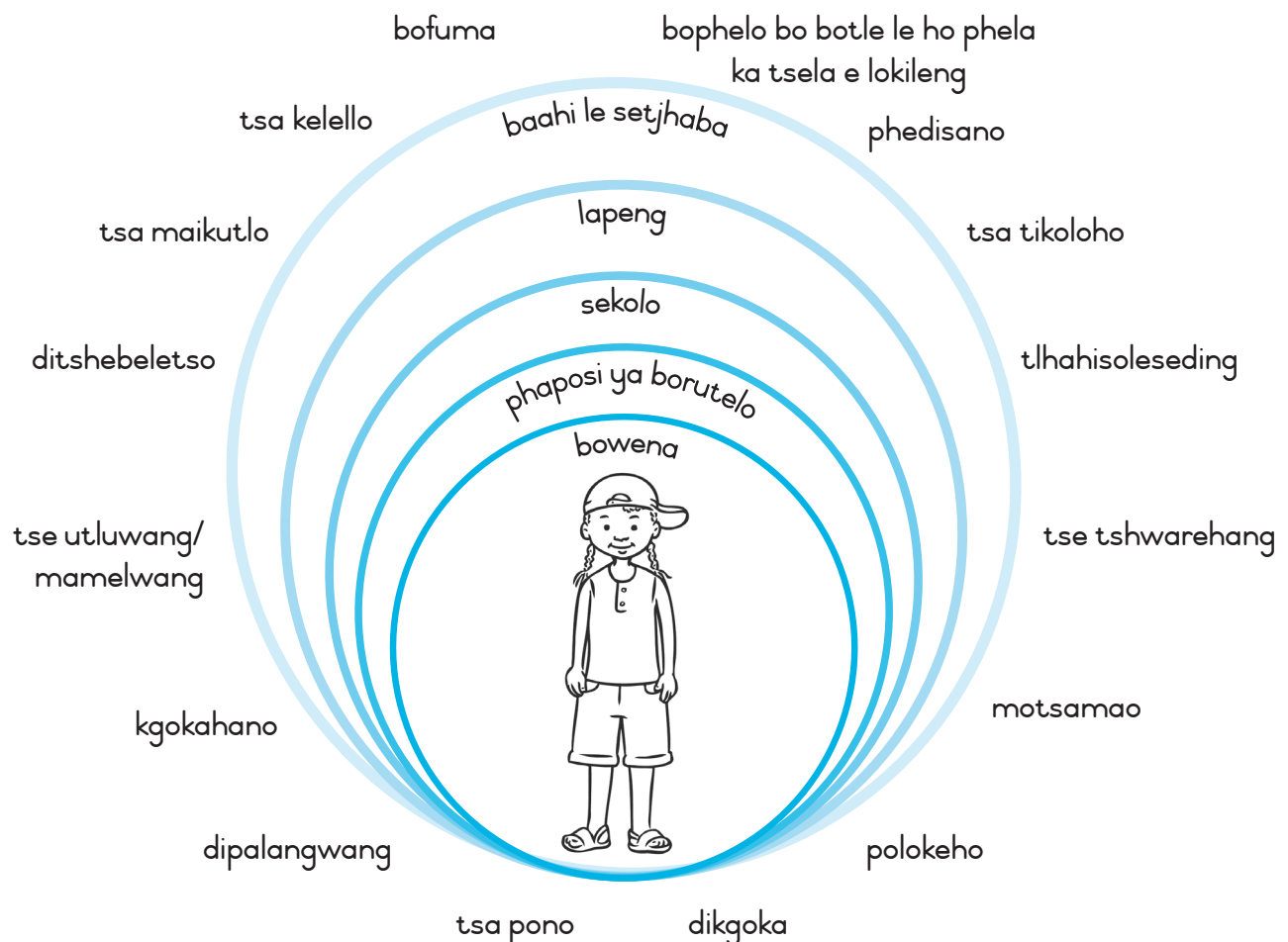
Figure 29 Barriers to learning

Ditshita tsa ho ithuta mmetse

Tshita bakeng sa ho ithuta ke ntho efe kapa efe e thibelang ngwana hore a kgone ho ithuta ka katleho. Ditshita di ka amahanngwa ka ho otloloha ho ngwana (ya ka hare), ho etsa mohlala, ho se itekanele kutlwisisong, mahlomola kapa sephaka se robhileng. Ditshita hape di ka ba ka ntle ho ngwana (tse ka ntle), ho etsa mohlala, bofuma, ho se hlokomelwe kapa phaposi ya borutelo e tletseng haholo.

Puo ke sesebediswa sa bohlokwa haholo sa ho ithuta. Afrika Borwa hangata sena se hlahella bobedi e le tshita ya ka hare le ya ka ntle ya ho ithuta, haholoholo moo puo ya ngwana ya lapeng e fapaneng le puo ya ho ruta le ho ithuta.

Bana ba bangata ba kopana le tshita e le nngwe kapa tse ngata tsa ho ithuta. Ba ka hloka boikwetliso bo bongata le tshetso ho feta tse batlwang ke baithuti ba bang. Ditshita tsa ho ithuta ke dintlha tse thatafalletsang ba bang ba baithuti ho ithuta mmetse. Mehlala ya ditshita e bontshwa dayakeramong e latelang.



Setshwantsho sa 29 Ditshita tsa ho 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.



Diketsahalong ...



Tse ding tsa ditsela tseo o ka kenyeletsang baithuti bohle phaposing ya hao ya borutelo ya Kereiti ya R di kenyeletsa tse latelang:

-  Hlophisa dithuto tsa hao, diketsahalo le disebediswa ho etsa hore di tshwanele ditlhoko tsa baithuti ba fapaneng, mohl. bothata ba mmetse bo theilweng ho setshwantsho bo ka hloka ho kenyeletsa tlhaloso e kenelletse hore o kgone ho thusa moithuti ho tsepamisa maikutlo ho dintlha tsa bohlokwa tsa setshwantsho.
-  Sebedisa diketsahalo tse ngata tse fapaneng tse etswang ka dintho tsa nnete.
-  Ekelletsa baithuti nako le tshehetso ho qetella diketsahalo, ho nahana le/kapa ho araba dipotso, haeba ba hloka ho etsa jwalo.
-  Ho ka thusa ho buisana, le mosebetsimmoho kapa sehlopha sa tshehetso sekolong, ka boemo boo o sebetsang ho bona ka moithuti eo ho etsa bonnete ba hore o mo fa tshehetso e phethahetseng kamoo o ka kgonang. Hape o ka hloka ho ya batlisisa ho batswadi kapa bahlokomedi ba ngwana eo le sehlopha sa tshehetso se theilweng seterekeng bakeng sa ho fa moithuti eo menyetla yohle e ka kgonehang bakeng sa ho ithuta le ho hola.




Dikolo di lokela ho netefatsa hore diphaposi tsohle tsa borutelo le matitjhere ba na le disebediswa tse lekaneng le tse lokelang ho ka sebediswa ke baithuti bohle, ho sa natswe ditshita tsa ho ithuta. Sena se kenyeletsa:

- ★ matitjhere a rupelletseng ho hlwaya ditshita tsa ho ithuta
- ★ mawa a fapaneng a ho ruta
- ★ phaposi ya borutelo e hlophisitseng ka nepo
- ★ boholo ba tlelase bo ka laolehang
- ★ bathusi ba ka phaposing ya borutelo.



Diketsahalong ...



-  Hlahloba baithuti bohle ha ba amohelwa Kereiting ya R mme o rekote tsohle tseo o di fumaneng ho Porofaele ya Moithuti ho ya ka leano la naha la Tlhahlobele, Ho hlwaya, Tekanyetso le Tshehetso (Screening, Identification, Assessment and Support (SIAS)) bakeng sa baithuti kaofela.
-  Etsa Moralo wa Tshehetso ya Moithuti ka mong (Individual Support Plan (ISP)) bakeng sa moithuti ofe kapa ofe ya kopanang le ditshita tsa ho ithuta. Tlhahisoleseding ena e lokela ho abelanwa le batswadi le/kapa bahlokomedi ele hore ba tle ba elellwe ditlhoko dife kapa dife tse ntjha le moralo wa tshehetso bakeng sa ngwana wa bona.
-  Sebedisana mmoho le Sehlopha sa Tshehetso se Thehilweng Sekolong bakeng sa ho fana ka tshehetso e hlokehang. Moithuti o romelwa ho Sehlopha sa Tshehetso se Thehilweng Seterekeng haeba ho ena le tshehetso e ekeditse e hlokehang.

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.

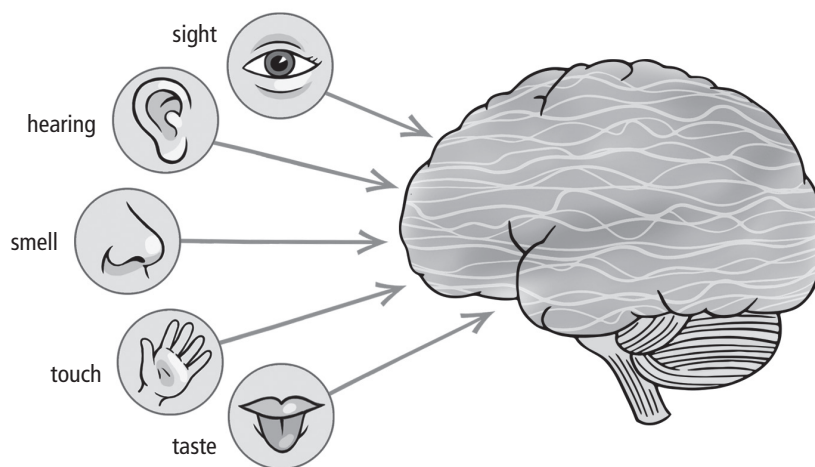


Figure 30 Our five senses



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?

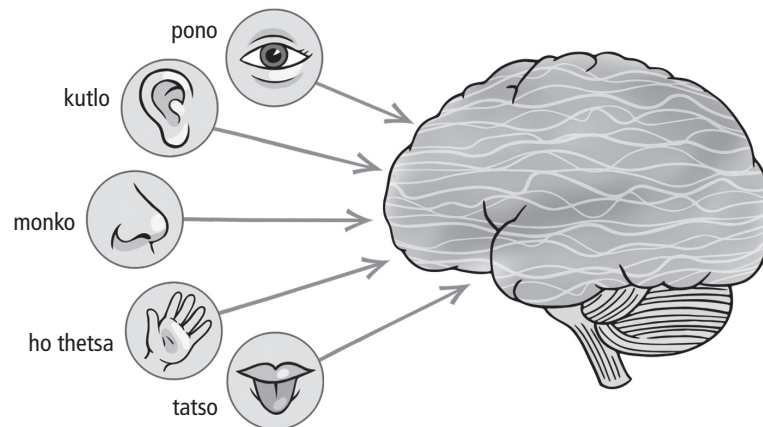
Ntshetsopele ya kutlwisiso le motsamao

Ntshetsopele ya bokgoni ba kutlwisiso le motsamao ho baithuti ba banyenyane e bohlokwa ka ho fetisisa bakeng sa ho aha motheo bakeng sa ntshetsopele le ho ithuta mmetse nakong e tlang. Kutlwisiso ka dikutlo e bolela ho sebedisa dikutlo bakeng sa ho fumana tlhahisoleseding e mabapi le tikoloho. Bokgoni ba kutlwisiso ka dikutlo bo bohlokwa bakeng sa ho ithuta mmetse hobane di re thusa ho utlwisisa:

- ★ tsela eo dintho di hokahaneng ka yona
- ★ ho tshwana le ho fapana
- ★ boholo, sebopeho le paterone
- ★ sebaka le boemo
- ★ matshwao le seo a se bolelang.

Bokgoni ba kutlwisiso bo re dumella ho utlwisisa lefatshe leo re phelang ho lona. Tlhahisoleseding ya dikutlo e bokellwa ke dikutlo tsa rona tse hlano, mohlala, seo mahlo a rona a se bonang, ditsebe di se utlwang, letlalo le se utlwang, leleme le se latswang le nko e se nkgelang.

Tlhahisoleseding ena e romelwa bokong ba rona. Boko bo sebetsa, bo hlophisa le ho hopola tlhahisoleseding ena ele hore re tle e sebedise ha morao bakeng sa diketso tsa letsatsi le letsatsi, tse kang ho bala, ho taka, ho ngola, ho seha, ho qetella diphazele, ho phethela mathata a mmetse, ho natefelwa ke pale, ho apara, ho batlana le dieta ka khabateng, ho bina esitana le mefuta e meng e mengata ya bokgoni.



Setshwantsho sa 30 Dikutlo tsa rona tse hlano



Diketsahalong ...



Shebella baithuti ba bapala ka ntle le ka hare ka disebediswa tse fapaneng.

👉 Na ba ka:

- ~ tseba phapang pakeng tsa medumo e fapaneng, mantswe a fapaneng?
- ~ fumana phapang pakeng tsa ditshwantsho tse pedi kapa dihlopha tse pedi tsa dintho?
- ~ hopola seo ba se boneng le ho se utlwa?
- ~ pheta lenane la mantswe kapa dinomoro ka tatelano e nepahetseng?
- ~ arabela ho medumo e fapaneng, mabitso a bona, ditaelo?
- ~ utlwa phapang pakeng tsa boreledi le mahwashe?
- ~ latswa phapang pakeng tsa ntho e tswekere le e bodila ba kwetse 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.

Bokgoni ba motsamao wa mesifa ke diketso tse kenyeletsang ho sebedisa mesifa ya rona. Re sebedisa mesifa e meholo mmeleng ya rona bakeng sa diketsahalo tsa motsamao wa tsa mesifa e meholo, mohl. ho raha bolo, ho matha le ho tlola. Re sebedisa mesifa e menyane bakeng sa diketsahalo tsa motsamao wa mesifa e menyane, mohl. ho seha, ho ngola le ho taka.

Ntshetsopele ya motsamao wa kutlwisiso ka kutlo e kenyeletsa tse latelang:

- ★ kutlwisiso ka pono
- ★ kutlwisiso ka kutlo
- ★ kutlwisiso ka ho thetsa
- ★ kutlwisiso ka metsamao ya ditho.

Grade R Maths e elellwa bohlokwa ba mefuta ena ya bokgoni bakeng sa ho ntshetsa pele mareo a mmetse ho baithuti ba Kereiti ya R.

Kutlwisiso ka pono

Kutlwisiso ka pono ke bokgoni ba boko ba ho sebedisa seo mahlo a se bonang le ho hlalosa tlhahisoleseding ena. Bokgoni ba kutlwisiso ka pono bo bohlokwa bakeng sa ho sebedisa dintho, ho taka, ho bala le ho ngola mmetseng.

Ho kgetholla ka pono

Ho kgetholla ka pono ke bokgoni ba ho bona ho tshwana le ho fapana pakeng tsa dintho. Ho etsa mohlala, ho elellwa se tshwanang le se fapaneng pakeng tsa dibopeho tsa 2-D tse kang setshwantsho sa kgutlonnetsepa le sa kgutlonne.

Tshebedisano ya metsamao ka pono

Tshebedisano ya metsamao ka pono ke bokgoni ba mahlo, boko le mesifa ya mmele ho sebetsa mmoho bakeng sa ho etsa diketso. Ho mmetse, ho bohlokwa bakeng sa diketso tse kang ho tshwara dintho, ho taka le ho ngola.

Diketsahalo tse thusang ho hodisa tshebedisano ya metsamao ka pono di kenyeletsa:

- ★ dipapadi tsa bolo le mokotlana wa dinawa
- ★ ho sebedisa diboloko tsa ho aha
- ★ ho bapala ka dintho tse thethehang kapa tse thellang
- ★ ho taka dipaterone
- ★ ho seha le ho manamisa
- ★ ho roka.

Ho qetella ka pono

Ho qetella ka pono ke bokgoni ba ho qetella dintho, ditshwantsho kapa metako tse sa fellang. Ka mantswa a mang, moithuti o kgona ho lemoha kapa ho hlwaya ntho e felletseng esitana le ha setshwantsho sohle se sa fella. Baithuti ba thatafallwang ke ho qetella ka pono, ho etsa mohlala, ba tla fumana ho le boima ho qetella diphazele. Hape ba ka thatafallwa ke ho hlalosa se siyo setshwantshong se bontshang feela lehlakore le letona la sefahleho kapa mmele, kapa ho qetella setshwantsho.

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.

Ho se fetole popeho le kutlwisiso ya popeho (temoho)

Ho se fetole popeho ke bokgoni ba ho bona phapang pakeng tsa dibopeho le matshwao, esitana le ha boholo ba tsona bo ka fetoha. Ka mantswe a mang, ho bolela ho kgona ho elellwa makgetha a sa fetoheng a ntho e itseng. Ho etsa mohlala, sedikadikwe ke sedikadikwe ka lebaka la sebopelo sa sona. Se dula e le sedikadikwe leha se ka ba bolou, perese, sa ba seholo kapa senyane, ka hara buka kapa sa takwa lehlatheng. Ka yona tsela eo, letshwao la nomoro '5' le dula le sa fetohle leha le ka ngolwa ka mebala e fapaneng kapa ka mongolo o moholo kapa o monyane.

Kutlwisiso ya tikoloho ka pono

Kutlwisiso ya tikoloho ka pono ke bokgoni ba ho lemoha phapang pakeng tsa dintho tse hlahelletseng ka pele le tse leng bokamoraong. O ka thusa baithuti ho ntshetsa pele bokgoni bona ka ho ba kopa ho hlwaya dintho tse itseng setshwantshong kapa ka hara pokello ya dintho, mohl. 'Fumana ngwananyana ya tenneng borikgwe bo bofubedu setshwantshong' kapa 'Fumana lebokoso le nang le dilamunu setshwantshong' kapa 'Fumana dieta tsa hao ka hara qubu ena ya dieta tsa rona bohle'.

Tlhahlamanyo ka pono

Tlhahlamanyo ka pono ke bokgoni ba ho bea dintho ka tatelano e nepahetseng kamora ho di sheba kapa ho di boha. Thusa baithuti ho fumana bokgoni bona ka ho ba kopa ho sheba paterone ya difaha tse mebala e fapaneng kgweleng mme ebe ba phetapheta paterone eo ka bobona.

Kgokahanyo ya motsamao ka pono

Kgokahanyo ya motsamao ka pono ke bokgoni ba ho utlwisisa tlhahisoleseding ya pono mme ebe o e sebedisa ketsahalong e nngwe e sebedisang bokgoni ba motsamao. Baithuti ba sebedisa tlhahisoleseding ya pono le bokgoni ba motsamao wa mesifa e menyane, ho etsa mohlala, ha ba kopolla dinomoro kapa ba taka ntho e ka pela bona.

Ho bopa setshwantsho kelellong

Ho bopa setshwantsho kelellong ke bokgoni ba ho etsa ditshwantsho ka kelellong ya hao (ditshwantsho tsa kelellong) ho ya ka tseo o di tsebang, dintho tseo o di boneng kapa tlhahisoleseding e nngwe ya pono. Baithuti ba sebedisa bokgoni bona, ho etsa mohlala, ha ba taka ditshwantsho tse kang phaposi e itseng lapeng la bona kapa tsa ba malapa a 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.

Kutlwisiso ka kutlo

Kutlwisiso ka kutlo ke bokgoni ba boko ba ho sebedisa seo ditsebe di se utlwang le ho hlalosa tlhahisoleseding ena. Kutlwisiso ka kutlo e bohlokwa bakeng sa ho ntshetsa pele bokgoni ba puo, ho latela le ho utlwisisa ditaelo esitana le ho abelana le ho buisana ka mehopolo le tlhahisoleseding.

Kgethollo ka kutlo

Kgethollo ka kutlo ke bokgoni ba ho lemoha ho tshwana le ho fapana medumong, mohl. ho kgona ho utlwa phapang pakeng tsa mantswena 'kgutlonne' le 'kgutlotharo'.

Kgopolo ya kutlo

Kgopolo ya kutlo ke bokgoni ba ho boloka le ho hopola ntho eo o e utlwileng. Baithuti ba sebedisa bokgoni bona ha ba latela sehlopha sa ditaelo kapa ba phetapheta tatelano ya dinomoro e balletsweng hodimo, mohl. 4, 6, 8, 1.

Kutlwisiso ya tikoloho ka kutlo

Kutlwisiso ya tikoloho ka kutlo ke bokgoni ba ho lemoha kapa ho ntsha modumo o itseng ka hara medumo e meng. Hape ke bokgoni ba ho tsepamisa maikutlo modumong o itseng leha ho ena le lerata kamorao tikolohong eo. Bokgoni bona bo dumella baithuti ho tsepamisa maikutlo ho seo motho e mong sehlopheng sa bona a se buang ntle le ho sitiswa ke lerata la batho ba bang ba ntseng ba bua.

Tlhahlamano ka kutlo

Tlhahlamano ka kutlo ke bokgoni ba ho hopola dintho ka tatelano e nepahetseng kamora ho utlwa lenane. Ho etsa mohlala, tatelano ya dinomoro ho tloha ho 1 ho isa ho 10 kapa dikgwedi tsa selemo. Ho kopa baithuti hore ba hlalose diketsahalo tse mmalwa tsa letsatsi ho ba thusa ho ntshetsa pele bokgoni bona.

Kutlwisiso ya boamo le tsamao ya mmele

Kutlwisiso ya boamo ke bokgoni ba ho sebedisa kutlo ya ho thetsa ho sibolla tikoloho ya hao. Kutlwisiso ya motsamao wa mmele ke ho lemoha metsamao ya mmele le boemo ba ona sebakeng. Di sebetsa mmoho ho fa boko tlhahisoleseding. Ketsahalo e thusang ho ntshetsa pele kutlwisiso ya moithuti ya boamo le tsamao ya mmele ke ho kopa baithuti ho tutubala, mme ebe ba phopholetsa le ho hlalosa dintho tse mmalwa tse fapaneng ka hara mokotla kapa selopo. Ho etsa mohlala, ba ka nna ba re e na le dikgutlwana/e tjihitja.

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. Ntlhatheo ya boikwetliso

Tlhaloso

Baithuti ba lokela ho ba le nako e ngata ya ho ikwetlisetsa bokgoni bo botjha le tsebo. Ha baithuti ba ikwetlisa ka makgetlo ho seo ba seng ba ithutile sona, ba ntlafala ho sona mme ba ba le boitshepo ho feta. Ba natefelwa ke ho phetapheta le ho ikwetlisa. Titjhere wa Kereiti ya R o lokela ho fana ka menyetla e phetaphetilweng bakeng sa baithuti hore ba ikwetlise le ho ntlafatsa bokgoni bo botjha.



Diketsahalong ...



- Ho bala le ho rarolla mathata ke ntho tse etswang letsatsi le letsatsi jwaloka diketsahalo tsa tlwaelo – esitana leha ho tsepamisitswe maikutlo ho dikgopolo tse ding tse kang sebopeho kapa mometho.
- Fana ka disebediswa tse fapaneng le mesebetsi e fapaneng ele hore baithuti ba kgone ho ikwetlisa ka bokgoni bo botjha boo ba ithutileng ka ditsela tse fapaneng.
- Mareo a mmetse le ona a ka sebediswa kharikhulamong ka bophara, ho etsa mohlala diketsahalong tsa Puo ya Lapeng le Bokgoni ho tsa Bophelo tse kang dipale, ditshwantshiso, ho penta le diketsahalo tsa ditshita.

Tse ding mabapi le ntlhatheo ya boikwetliso

Ho sebedisa diraeme, dipina le dipale

Ho bina dipina le ho phetapheta diraeme mmoho, le ho abelana ka dipale ke tsela e monate, e se nang tlhodisano ya ho ithuta. Bana ba ithuta mareo a mmetse le bokgoni ha ba phetapheta diraeme le dipina, mme ba mamela dipale kgafetsa. Ba ithuta le ho ikwetlisa ka:

- ★ mabitso a dinomoro (mohl. 'Ho ne ho ena le mesha e menyane e meraro ...')
- ★ tatelano ya mabitso a dinomoro
- ★ ho bala o eya pele le morao
- ★ ho bala dihlopha tsa dintho
- ★ ho etsa dipalo ka tsela e sa hlophiswang, mohl. ho kopanya le ho tlosa
- ★ tatelano ya diketsahalo.



Diketsahalong ...



- Kenya metsamao, morethetho le mmimo dipineng, diraemeng le dipaleng ho etsa hore di le natefele le ho feta. Boiphihlelo bo sebedisang dikutlo tsa rona kaofela bo thusa baithuti ho hopola dintho ha bonolo.
- Kgothaletsa batswadi le bahlokamedi ba bang ho ithuta dipale, dipina le diraeme tseo o di sebedisang le baithuti. Ka tsela ena, ba eba lehokela la bohlokwa bakeng sa bana pakeng tsa diketsahalo tsa lapeng le tsa sekolong.

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.

Kgokahanyo ya mmetse lenaneong la Kereiti ya R la letsatsi le letsatsi ka bophara

Matitjhere a hloka ho etsa dikamano pakeng tsa mmetse, diketso tsa kamehla le dithuto tse ding (mohl. Puo ya Lapeng le Bokgoni ho tsa Bophelo), esitana le pakeng tsa mmetse le bophelo ba kamehla ba baithuti. Matitjhere a lokela ho sebedisa menyetla yohle bakeng sa ho ikwetlisa ka bokgoni ba mmetse.



Diketsahalong ...



Baithuti ba ka bontsha thahasello ya ho ithuta mmetse, mme ba fumane o le bonolo ho utlwisiswa, haeba ba ka bona kamoo mmetse o nang le moelelo le ho ba le molemo maphelong a bona. Matitjhere a ka thusa ka ho etsa tse latelang:

- Ho elellwa kamoo mmetse e leng karolo ya maphelo a bona a kamehla le a porofeshenale ka teng.
- Ho bontsha baithuti kamoo mmetse o sebediswang bophelong ba kamehla, mohl. ha o sebedisa tjhelete ho reka ho hong.
- Ho hokahanya diketsahalo tsa mmetse mmoho le diketsahalo tse ding tsa phaposing ya borutelo le ka ntle, jwalo ka:
 - ~ ho sebedisa dinomoro tsa boemo '-pele', '-bobedi', le '-boraro' ha baithuti ba ema moleng
 - ~ ho bua ka boemo le lehlakore ha baithuti ba bapala
 - ~ ho bua ka 'ngata' le 'nyane' ha baithuti ba abelana ka ditholwana, bohobe le/kapa senomaphodi.
- Ho etsa dikamano le mareo a mmetse a kang boholo, mometho, nako, kakanyo, ho bala dintho, dipapiso, sebopeho le/kapa bohole ha o balla baithuti dipale.

Ruta mareo a mmetse nakong ya tsepamiso ya mmetse wa Kereiti ya R mme o batle menyetla e meng ho ntshetsa pele puo ya mmetse le mareo letsatsi lohle. Sena:

- se thusa baithuti ho fumana kutlwisiso ya kamoo dibaka tse fapaneng tsa tsebo di amanang ka teng
- se netefatsa boiphihlelo ba ho ithuta bo phethahetseng kapa bo felletseng
- se fa baithuti menyetla e meng bakeng sa ho etsa seo ba ithutileng sona.

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

Mmetse Lenaneong la Kereiti ya R la Letsatsi le Letsatsi

Selelekela

Lenaneo la *Grade R Maths* le etseditswe ho matlafatsa le ho tshehetsa kharikhulamo ya Mmetse wa Kereiti ya R. *Grade R Maths*:

- ★ e kenyeletsa le ho atolosa dikahare tsa Mmetse wa Kereiti ya R wa SLTK tse manolotsweng Dikarolong tsa Dikahare tse hlano
- ★ e kgothaletsa ho ithuta ho theilweng patlisisong ka ho hlahisa ditsela tsa ho atolosa thahasello ya tlhaho ya baithuti bakeng sa ho sibolla ditikoloho tsa bona
- ★ e fana ka diketsahalo tse kgothaletsang baithuti ho fuputsa le ho sibolla mareo a mmetse
- ★ e kgothaletsa matitjhare ho bua le baithuti mabapi le seo ba se nahanang le ho ba thusa ho hlahisa mehopolo ya bona
- ★ e etsa tlhahiso ya ditsela bakeng sa baithuti ho hlophisa, ho shebella le ho bokella tlhahisoleseding, mme ebe ba bapisa, ba hlophisa, ba bea ka manane le ho hlalosa diphumano tsa bona
- ★ e fana ka disebediswa le mehlodi e loketseng.

Dikarolo tsa Dikahare tsa Mmetse

Mmetse Mophatong wa Motheo (o kenyeletsang Kereiti ya R) o akaretsa Dikarolo tsa Dikahare tse hlano. Karolo ka nngwe ya Dikahare e nehela ho moithuti ho ntshetsa pele tsebo le bokgoni tse ikgethang tsa mmetse.

Dikarolo tsa Dikahare ke:

- ★ Dinomoro, Matshwao le Dikamano
- ★ Dipaterone, Ditshebetso le Aljebra
- ★ Sebaka le Sebopeho (Jeometri)
- ★ Mometho
- ★ Ho Sebetsa ka Datha

O ka fumana dintlha tse ding mabapi le Karolo ya Dikarahe ka nngwe e ho SLKT le ho Karolo ya 3 ya tataiso ena (leqephe la 111).

Ho metha Dikarolo tsa Dikahare tsa Mmetse

SLTK e hlahisa hore nako ya ho ruta bakeng sa Mmetse Kereiting ya R e lokela ho ba dihora tse 23 ka beke. Leha ho le jwalo, SLTK ha e fane ka tekanyo kapa karohanyo bakeng sa Kereiti ya R ya nako e ka abelwang

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	3	4	5	5	17	42,5
	Number recognition						
	Number sense (relationships)						
	Problem solving						
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	4	3	2	2	11	27,5
	3-D objects and 2-D shapes						
	Symmetry						
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

Karolo ka nngwe ya Dikahare bakeng sa kotara ka nngwe. Tekanyo ya Dikarolo tsa Dikahare tsa Mmetse e na le dipheo tse pedi tse ka sehloohong:

- ★ E fana ka tataiso ho bolelele ba nako e hlokehang ho sebetsana le dikahare tsa thuto ka tsela e lekaneng ka hare ho Karolo ka nngwe ya Dikahare.
- ★ E fana ka tataiso ya hore ho ka fanwa ka tekanyo e kae ho dikarolo tse fapaneng tsa kharikhulamo ya Kereiti ya R nakong ya tekanyetso.

Lenaneo la *Grade R Maths* le hlalisa tekanyo e lekaneng hantle ya Dikarolo tsa Dikahare. Sena se thehilwe ho tse latelang:

- ★ Dikarolo tsa Dikahare kaofela di bohlokwa ka ho lekana esitana leha di keke tsa abelwa nako e lekanang ho karolo ka nngwe.
- ★ Dikarolo tse ding tsa Dikahare di hloka nako e ekeditsweng bakeng sa ntshetsopele ya dikgopolo, mohl. Dinomoro, Matshwao le Dikamano, le Sebaka le Sebopeho (Jeometri).

Lenaneo la *Grade R Maths* le tsepame ho Karolo ya Dikahare e itseng beke ka nngwe ha le ntse le netefatsa kgobokanyo le kgokahano ya tsebo e ntjha. *Tataiso ya Diketsahalo* bakeng sa kotara ka nngwe e hlophisa dikahare le lenane la dibeke ho ya ka tekanyo ena bakeng sa ho netefatsa hore dihlooho tsa SLTK tsa Karolo ya Dikahare le ntshetsopele ya mareo a sehlooho di a kenyeletswa. Tafole e ka tlase mona e bontsha lenane la dibeke tse hlokehang bakeng sa tsepamiso ya dikahare bakeng sa Karolo ka nngwe ya Dikahare kotareng ka nngwe.

Tafole ya I Lenane la dibeke bakeng sa Karolo ya Dikahare ho kotara ka nngwe

Tekanyo ya Dikahare tsa Mmetse wa Kereiti ya R							
Karolo ya Dikahare	Sehlooho	Dibek t sa Kotara ya 1	Dibek t sa Kotara ya 2	Dibek t sa Kotara ya 3	Dibek t sa Kotara ya 4	Lenane lohle la dibek ka selemo	% yohle ya nako
Dinomoro, Matshwao le Dikamano	Ho bala dinomoro Ho eellwa dinomoro Moelelo wa dinomoro (dikamano) Dipalo tsa ho rarolla mathata Ho sebetsa dipalo	3	4	5	5	17	42,5
Dipaterone, Ditshebetso le Aljebra	Hlwaya, kopolla, atolosa le ho iketsetsa dipaterone	1	1	1	1	4	10
Sebaka le Sebopeho (Jeometri)	Maemo, tswana le tjebo Dintho tsa 3-D le dibopeho tse 2-D Molahare	4	3	2	2	11	27,5
Mometho	Nako Bolelele Boima Mothamo/Volumo	1	1	1	1	4	10
Ho Sebetsa ka Datha	Ho bokella, ho hlopha, ho emela le ho manolla dintho/ tlhahisoleseding	1	1	1	1	4	10
Dibek tsohle		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).

Mmetse le lenaneo la Kereiti ya R la letsatsi le letsatsi

Lenaneo la letsatsi le letsatsi

Lenaneo la Kereiti ya R la letsatsi le letsatsi ke pakathuto e nang le makgetha a yona a ikgethileng. Ha le tshwane le dipakathuto tse sebediswang dikereiting tse ding sekolong. Le fana ka sebaka bakeng sa ditlhoko tsa ntshetsopele ya baithuti ha le ntse le leka ho rarolla ditlhoko tsa leano la SLTK.

Dayakeramo ya lenaneo la Kereiti ya R la letsatsi le letsatsi (Setshwantsho sa 31) e kenyeletsa ho arola nako e lekantshitsweng jwaloka tataiso bakeng sa matijhere. Dinako tse di lokela ho kgona ho fetofetolwa Kereiting ya R, empa ho lokela ho be le:

- ★ dihora tse 4 le metsotso e 36 ka letsatsi (kapa dihora tse 23 ka beke) tsa nako ya ho ithuta le ya ho ruta
- ★ diketsahalo tse kenyeletsang dithuto tse tharo: Puo ya Lapeng (dihora tse 10 ka beke), Mmetse (dihora tse 7 ka beke) le Bokgoni ho tsa Bophelo (dihora tse 6 ka beke).

Thuto ka nngwe ho tse na e na le karolo ya tsepamo ya letsatsi le letsatsi mme hape e hokahanngwa ho diketsahalo tse ding letsatsi lohle. Lenaneo la letsatsi le letsatsi le Setshwantshong sa 31 le bontsha nako ya tsepamo ya mmetse esitana le menyetla bakeng sa ho ithuta mmetse o sa hlophiswang. Ho ithuta mmetse ho etsahala ho:

- ★ dikarolo tsa tlelase yohle moo baithuti ba buisanang jwaloka sehlopha se le seng se seholo le titjhere
- ★ dikarolo tsa dihlotshwana tse tataiswang ke titjhere moo baithuti ba fihlang ho ba robedi ba sebetsang le titjhere
- ★ dikarolo tsa dihlotshwana moo baithuti ba fihlang ho ba robedi ba sebetsang ba le bang diketsahalong tsa ditafole (dibakeng tsa tshebetso)
- ★ dikarolo tsa kgetho ya bolokolohi moo baithuti ba ikgethelang seo ba batlang ho se etsa ho kgetho ya diketsahalo tse beilweng ke titjhere (kgetho ya bona).

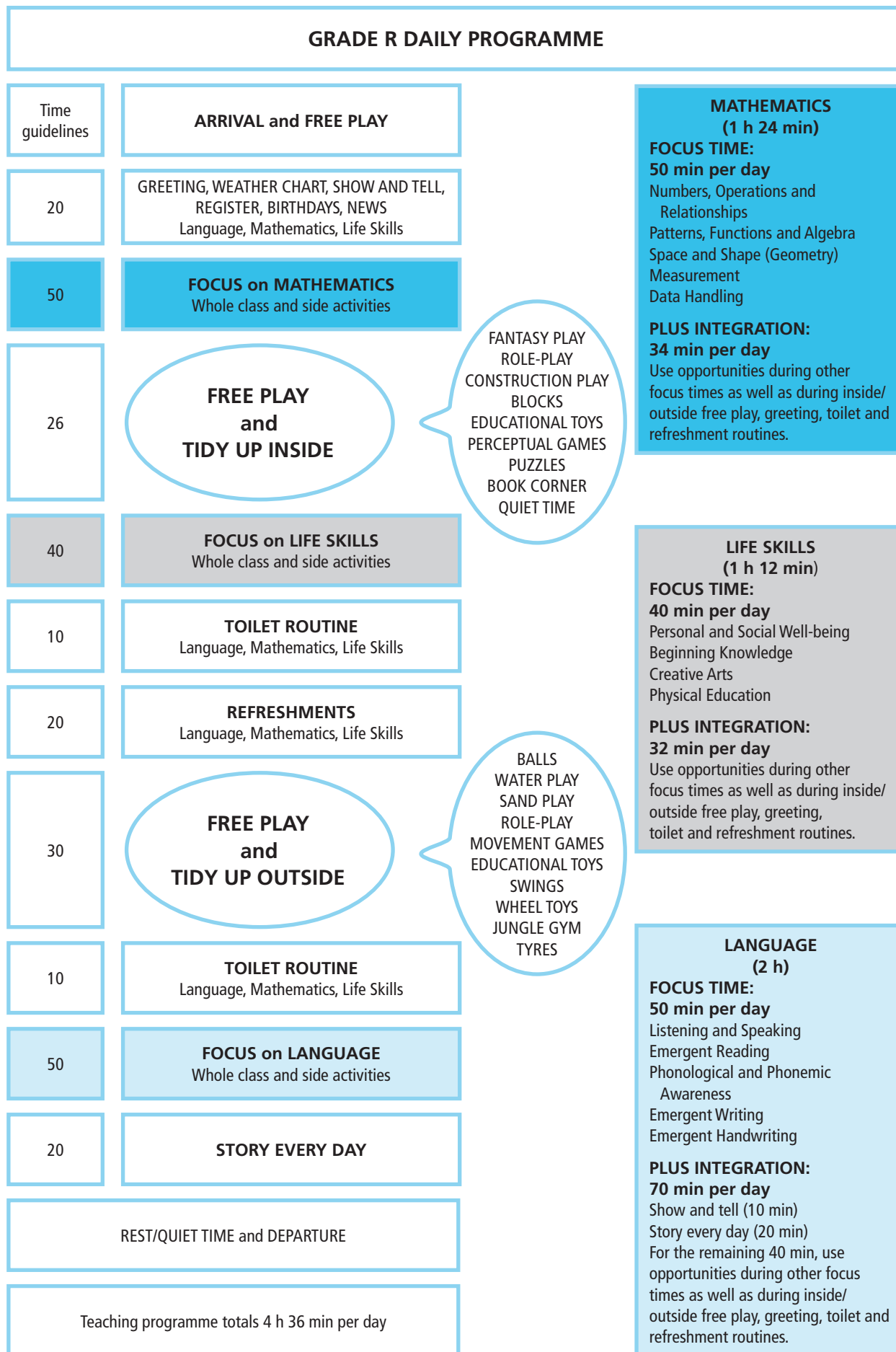


Figure 3| GDE exemplar Grade R Daily Programme

LENANEO LA KEREITI YA R LA LETSATSI LE LETSATSI

Ditataiso tsa nako		HO FIHLA le HO BAPALA KA BOLOKOLOHI	
20		TUMEDISANO, TJHATE YA MAEMO A LEHODIMO, BONTSHA O BOLELE, REJISTARA, MATSATSI A TLHAHO, DITABA Puo, Mmetse, Bokgoni ho tsa Bophelo	
50		TSEPAMISO ho MMETSE Diketsahalo tsa sehlopha sohle le tsa ka thoko	
26		HO BAPALA KA BOLOKOLOHI le HO HLWEKISA KA HARE	PAPADI YA BOINAHANELO PAPADI YA BONKETSISANE PAPADI YA HO AHA DIBOLOKO DIBAPADISWA TSA THUTO DIPAPADI TSE SEBEDISANG KUTLWISISO DIPHAZELE HUKU YA DIBUKA NAKO YA KGUTSO
40		TSEPAMISO ho BOKGONI HO TSA BOPHELO Diketsahalo tsa sehlopha sohle le tsa ka thoko	
10		TLWAELO YA HO SEBEDISA NTLWANA Puo, Mmetse, Bokgoni ho tsa Bophelo	
20		PHOMOSETSO Puo, Mmetse, Bokgoni ho tsa Bophelo	
30		HO BAPALA KA BOLOKOLOHI le HO HLWEKISA KA NTLE	DIBOLO HO BAPALA KA METSI HO BAPALA KA LEHLABATHE HO BAPALA BONKETSISANE DIPAPADI TSA TSHEBEDISO YA MMELE DIBAPADISWA TSA THUTO MESWINKI DIBAPADISWA TSA MABIDI JANKELE JIMI DITAERE
10		TLWAELO YA HO SEBEDISA NTLWANA Puo, Mmetse, Bokgoni ho tsa Bophelo	
50		TSEPAMISO ho PUO Diketsahalo tsa sehlopha sohle le tsa ka thoko	
20		PALE LETSATSI LE LETSATSI	
		PHOMOLO/NAKO YA KGUTSO le HO TSAMAYA	
		Lenaneo la ho ruta le nka dihora tse 4 metsotso e 36 ka letsatsi	

MMETSE
(hora e 1 mets e 24)
NAKO YA TSEPAMISO:
Mets e 50 ka letsatsi
Dinomoro, Matshwao le Dikamano
Dipaterone, Ditshebetso le Aljebra
Sebaka le Sebopeho (Jeometri)
Mometho
Ho Sebetsa ka Datha

KGOKAHANYO MMOHO:
Mets e 34 ka letsatsi
Sebedisa menyetla ka dinako tse ding tsa tsepamiso esitana le nakong ya papadi ya bolokolohi ya ka hare/ka ntle, ya tumedisano, ya ditlwaelo tsa ho sebedisa ntlwana le tsa phomosoetso.

BOKGONI HO TSA BOPHELO
(hora e 1 mets e 12)
NAKO YA TSEPAMISO:
Mets e 40 ka letsatsi
Bophelo bo botle ba Motho le ba Phedisano
Tsebo ya Qalong
Bonono ba tsa Boiqapelo
Thuto ya Boithapallo ba Mmele

KGOKAHANYO MMOHO:
Mets e 32 ka letsatsi
Sebedisa menyetla ka dinako tse ding tsa tsepamiso esitana le nakong ya papadi ya bolokolohi ka hare/ka ntle, tumedisano, ditlwaelo tsa ho sebedisa ntlwana le tsa phomosoetso.

PUO
(dih tse 2)
NAKO YA TSEPAMISO:
Mets e 50 ka letsatsi
Ho Mamela le ho Bua
Ho Bala ho Holang
Ho elellwa tshebediso ya Medumo (Fonoloji) le Difonemi
Ho Ngola ho Holang
Ho Ngola ka Letsoho ho Holang

KGOKAHANYO MMOHO:
Mets e 70 ka letsatsi
Bontsha o bolele (mets e 10)
Pale kamehla (mets e 20)
Ka metsotso e 40 e setseng, sebedisa menyetla ka dinako tse ding tsa tsepamiso esitana le nakong ya ho bapala ka bolokolohi ka hare/ka ntle, ho dumedisana, ditlwaelo tsa ho sebedisa ntlwana le tsa phomosoetso.

Setshwantsho sa 31 Mohlala wa GDE wa Lenaneo la Kereiti ya R la Letsatsi le Letsatsi

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.

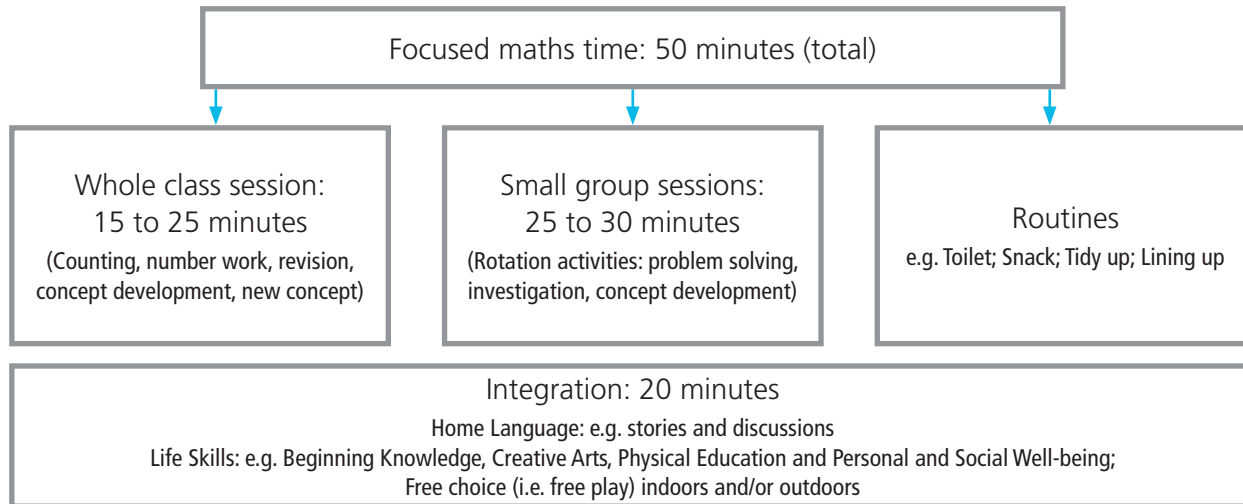


Figure 32 Suggested use of daily maths time

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

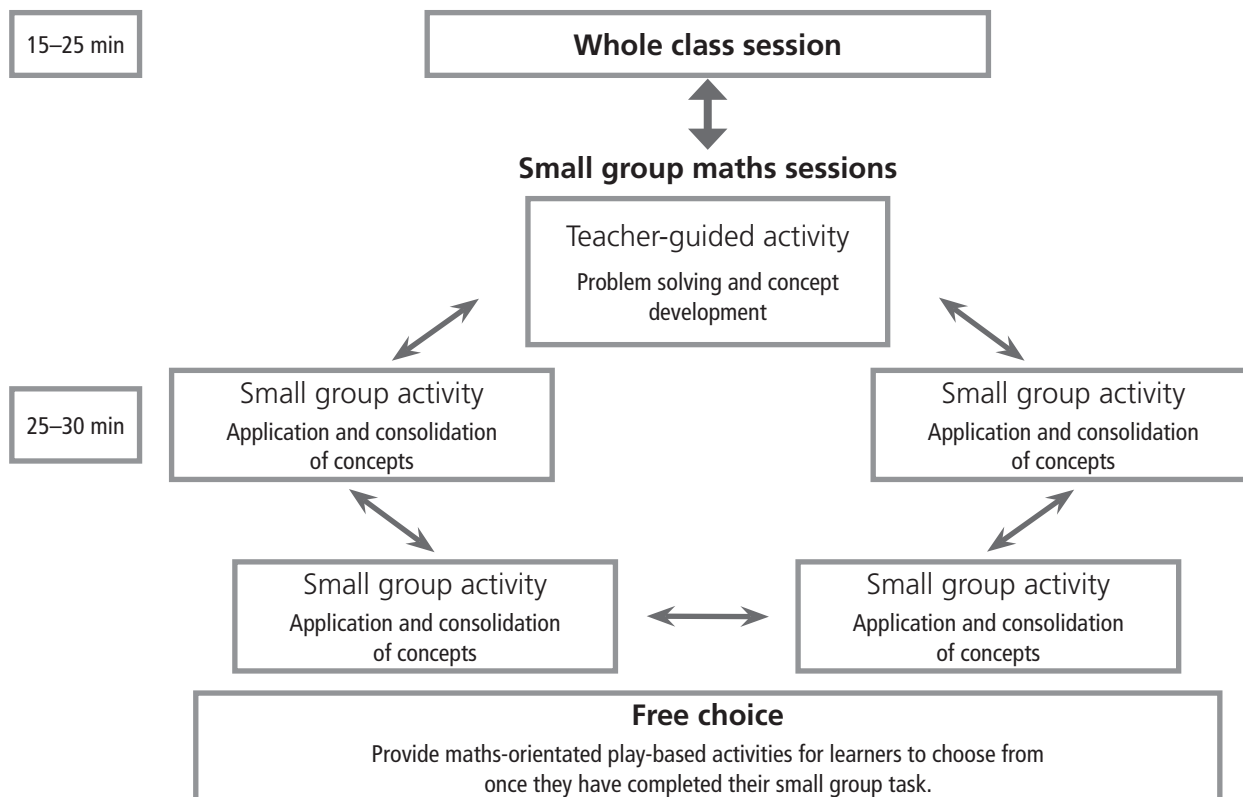


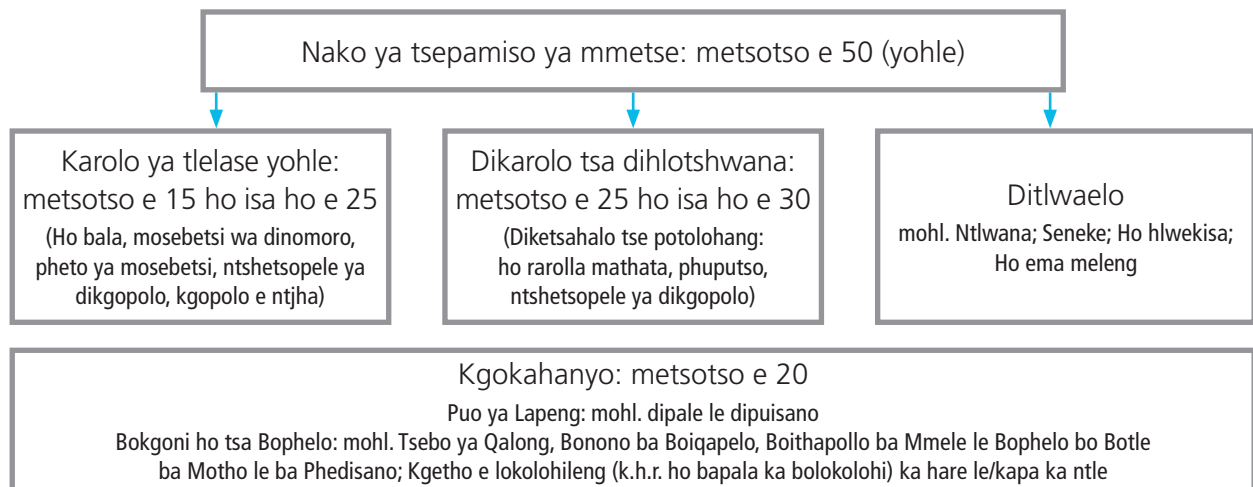
Figure 33 Daily maths focus time in Grade R Maths

Kabo ya nako ya Mmetse wa Kereiti ya R

Nako e abetsweng Mmetse wa Kereiti ya R ke dihora tse supileng ka beke le hora e 1 metsotso e 24 (metsotso e 84) ka letsatsi. Letsatsi ka leng nako ena e botjwa ka:

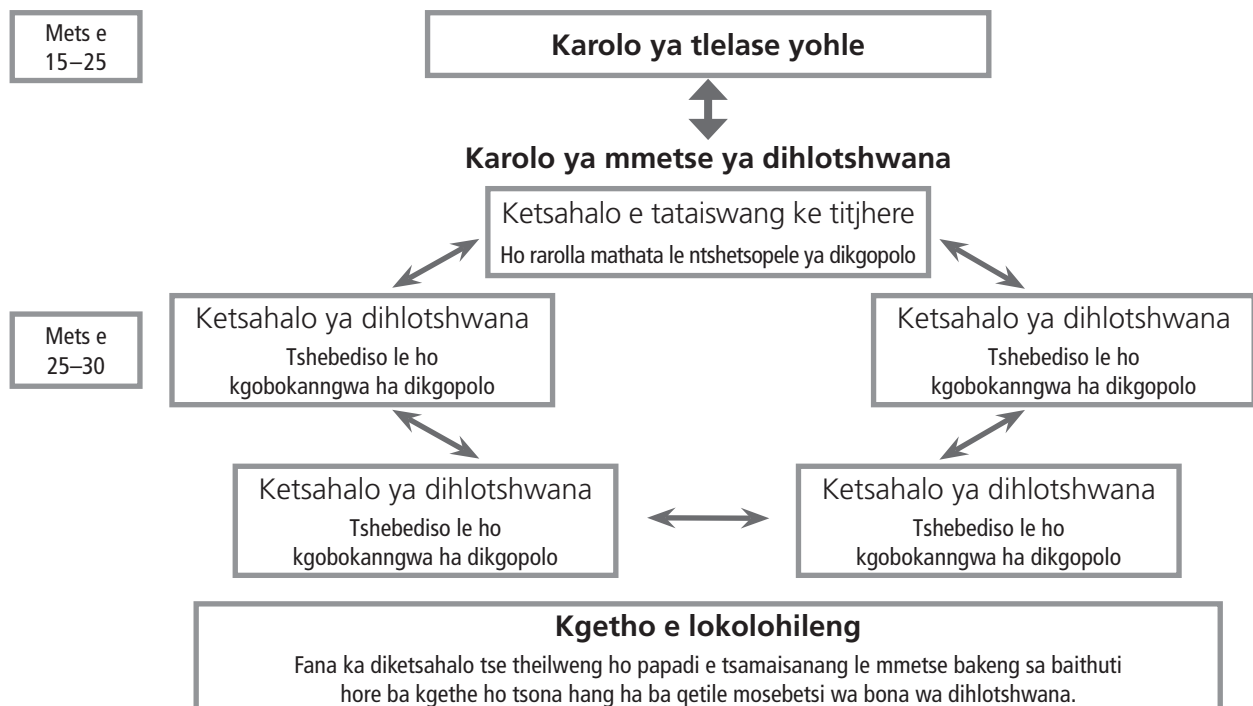
- ★ metsotso e 50 ya diketsahalo tse tsepamisitseng maikutlo ho ho ithuta le ho ruta mmetse
- ★ metsotso e 34 ya ho ithuta ho kgokahantsweng, diketsahalo tse hlophisitsweng le diketsahalo tsa moithuti tsa boikemelo ka hare le ka ntle ho phaposi ya borutelo.

Setshwantsho sa 32 se bontsha tlhahiso ya kamoo o ka sebedisang kabo ya letsatsi le letsatsi ya hora e 1 le metsotso e 24.



Setshwantsho sa 32 Tshebediso e kgotsoaletswang ya nako ya mmetse ya letsatsi le letsatsi

Setshwantsho sa 33 se bontsha kamoo nako ya letsatsi ka leng ya ho tsepamisa maikutlo ho mmetse e hlophisitsweng ho *Grade R Maths*.



Setshwantsho sa 33 Nako ya tsepamiso ho mmetse wa letsatsi le letsatsi ho *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.

Diketsahalo tse ekeditsweng tse ka fuwang baithuti di kenyeletsa:

- ★ ho aha diphazele
- ★ diketsahalo tsa letsopa la ho bapala
- ★ diketsahalo tsa ho aha
- ★ dipapadi tsa thuto
- ★ huku ya dibuka – ‘ho bala’
- ★ dibuka tsa mosebetsi le maqephe a mosebetsi a Lefapha la Thuto ya Motheo.

Hang ha karolo e tsepamisang maikutlo ho mmetse e phethilwe baithuti bohle ba nka seabo ho hlwekiseng mme ebe ba fetela karolong e latelang ya lenaneo la letsatsi le letsatsi.

Kamoo o ka hlophisang phaposi ya hao ya borutelo bakeng sa karolo ya mmetse ya letsatsi le letsatsi

Latela ditataiso tse na ho o thusa ho kenya lenaneo la *Grade R Maths* tshebetsong ka phaposing ya hao ya borutelo kamehla.

Nako ya tsepamiso ya Mmetse wa Kereiti ya R e lokela ho hlophisetswa le ho rerelwa motswako wa diketsahalo tsa sehlopha sohle le tsa dihlotshwana. Dihlotshwana tse boholo bo fapaneng di phethahatsa dipheo tse fapaneng tsa ho ruta le ho ithuta. Kgetho ya sehlopha se sehlo kapa se senyane e tla itshetleha ho ketsahalo ya ho ruta kapa ya tekanyetso eo titjhere a e rerileng. Ho laola tlelase e kgolo ke ntho e phephetsang, haholoholo haeba titjhere a rera ho shebana le baithuti ka bonngwe mme a kenyeletsa baithuti ba nang le ditshita tsa ho ithuta.

Dikarolo tsa mmetse wa sehlopha sohle

Hangata dikarolo tsa mmetse wa sehlopha sohle di pakeng tsa metsotso e 15 le 25 ka bolelele mme baithuti bohle ba dula ba entse sedikadikwe mmoho le titjhere.

Diketsahalo tse latelang tsa mmetse di ka etswa karolong ya mmetse ya sehlopha sohle:

- ★ ho kgobokanya le ho ikwetlisa ka dikgopolo tse rutilweng ka nako e fetileng
- ★ ho tsebisa kgopolo e ntjha
- ★ ho atolosa kgopolo eo e leng yona e shebilweng bekeng eo
- ★ ho bala ka molomo/modumo (diraeme, dipina, tatelano ya dinomoro)
- ★ mmetse wa menthele (hlooho) (ho fana ka mathata, dipapadi tsa kgopolo)
- ★ ho fana ka ditaello bakeng sa mosebetsi o lokelang ho etswa dihlotshwaneng ha wena o ntse o etsa ketsahalo e tataiswang ke titjhere.



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.



Setshwantsho sa 34. Karolo ya mmetse ya sehlopha sohle

Dikarolo tsa mmetse tsa dihlotshwana

Dikarolong tsa dihlotshwana, tlelase e arolwa ka dihlotshwana tse hlano tsa baithuti. Letsatsi ka leng, sehlotshwana se le seng se sebetsa le titjhere (ketsahalo e tataiswang ke titjhere) ha dihlotshwana tse ding tse nne di sebetsa ka botsona ho diketsahalo tsa mmetse tse hlophisitsweng ke titjhere.

Molemo wa ho hlophisa diketsahalo bakeng sa dihlotshwana tse tataiswang ke titjhere le tse ikemetseng ke ona:

- ★ Disebediswa tse mmalwa di a hlokeha bakeng sa sehlotshwana ho feta tlelase yohle, ho etsa mohlala, dikere, dibadi, diboloko, jj.
- ★ Moithuti ka mong o na le monyetla wa ho tshwara disebediswa le mehlodi.
- ★ Ho kgothaletsa bokgoni ba ho phedisana le batho, ho etsa mohlala, ho abelana, ho fana dibaka, ho bua le ho mamela.
- ★ Baithuti ba nka boikarabelo bakeng sa mesebetsi ya sehlotshwana, jwaloka ho hlwekisa.
- ★ Titjhere a ka hlophisa ditaelo le dipotso ho ya ka boemo ba sehlotshwana.
- ★ Titjhere a ka shebella moithuti ka mong ka ho ikgetha ho netefatsa bokgoni bo ikemetseng.

Ho sebedisa dihlotshwana ho fa matitjhere monyetla wa ho bea baithuti ba boemong bo tshwanang le ba nang le bokgoni bo tshwanang sehlotshwaneng se le seng. Ka mantswa a mang, ka dihlotshwana titjhere o kgona ho bea bana mmoho ho ya ka mofuta wa tshehetso oo ba o hlokanang hore ba ithute ka katleho.

Nakong ya matsatsi a mahlano, dihlotshwana di a potoloha ho tloha ketsahalong e nngwe ho ya ho e nngwe letsatsi ka leng. Sena se bolela hore ka beke baithuti bohle ba tla be ba fumane monyetla wa ho phetha **ketsahalo e tsepameng ho tataiso ya titjhere** le diketsahalo tse ding tse nne tsa dihlotshwana (**kaofela ha tsona e eba diketsahalo tse hlano tse fapaneng tsa mmetse**). Diketsahalo tse nne tsa boikemelo (**kapa diketsahalo tsa ka thoko**) di lokela ho etsetswa **diteisheneng tsa tshebetso tse** nne ka hara phaposi ya borutelo – ekaba ditafoleng tseo baithuti ba dulang ho tsona kapa ba eme, kapa fatshe mmateng, kapa ka ntle. Dihlotshwana di a potoloha ha beke e ntse e tsamaya, ho ya ka hore titjhere o hlophisitse diketsahalo tseo jwang.





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.





Diketsahalong ...



Ditsela tsa ho bea bana ka dihlotshwana bakeng sa mmetse

Ho dula o ntse o shebelletse baithuti nakong ya diketsahalo tsa ka ntle le tsa ka hare ho tla fa matijhere kutlwisiso ya bokgoni le dithahasello tsa baithuti. Dikutlwisiso tsena di tla o thusa ho arola bana ka dihlotshwana tse fapaneng. Dihlotshwana di ka nna tsa thewa ho bokgoni kapa di ka arolwa ho ya ka boitsebelo ba baithuti ho bokgoni bo botjha.

 Dihlotshwana tsa bokgoni: Dihlotshwaneng tsena, baithuti ba boemong bo tshwanang ba ntshetsopele. Ka nako e nngwe ho bobebe ho ruta mareo a matjha a mmetse o sebedisa dihlotshwana tsa bokgoni kaha baithuti ba bang ba tla hloka nakwana e ngata bakeng sa ho phethela mosebetsi o itseng ha ba bang ba tla hloka mesebetsi e batlang e le boimanyana. Ka nako tse ding o ka nna wa batla hore baithuti ba nang le ditshita ba sebetse le wena ho kopanya dikgopolo tse kang neelatsano pakeng tsa ntho tse pedi le ho bala dipokello, kapa o ka nna wa batla ho phephetsa baithuti ba seng ba le pejana ka ho ba fa mathata a mmetse a boimanyana.

 Dihlotshwana tse nang le bokgoni bo tswakaneng: Dihlotshwaneng tsena, baithuti ba na le maemo a fapaneng a bokgoni le kutlwisiso ya kgopolo e itseng. Mefuta ena ya dihlotshwana e sebetse hantle bakeng sa ho aha, ho metha, ho etsa dipaterone le ho hlopha, le dipapadi.

Tsela efe kapa efe eo o e kgethang ho bea baithuti ka dihlotshwana, dihlotshwana tseo ha di a lokela ho dula di le jwalo nako e telele mme sehlotshwana ka seng se lokela ho ba le letshwao la sona (setshwantsho kapa sebopeliso) le lebitso.

Diketsahalo tsa dihlotshwana tse tataiswang ke titjhere

Ketsahalong e tataiswang ke titjhere, titjhere o sebetse le sehlotshwana se le seng sa baithuti ha dihlotshwana tse ding di ntse di qetella diketsahalo tse hlophisitsweng ho se seng sa diteishene tse nne tsa tshebetso.

Diketsahalo tse latelang di tshwanela hantle tikoloho ya dihlotshwana tse tataiswang ke titjhere:


- ★ ho kgobokanya le ho sebedisa dikgopolo tse rutilweng nakong e fetileng
- ★ ho tebisa kutlwisiso ya kgopolo e ntjha.





Diketsahalong ...



Dikeletso bakeng sa diketsahalo tsa mmetse tsa dihlotshwana tse tataiswang ke titjhere

 Phethela diketsahalo tse tsepameng ho kgopolo ya Mmetse wa Kereiti ya R e hlophiseditsweng beke eo.

 Sebeletsa fatshe kapa tafoleng mmoho le baithuti.

 Etsa hore mosebetsi oo e be wa tshelbedisano, moo wena le baithuti le o kopanelang.


 Tsepamo e lokela e be ho ho sebetse ka ho buisana le ka matsoho mmoho le baithuti.



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



Setshwantsho sa 35 Ho nyalanya dibadi le dikarete tsa dinomoro

Diketsahalo tsa dihlotshwana

Diketsahalo tse latelang di loketse hantle tikoloho ya dihlotshwana moo baithuti ba sebetsang ka bobona ho se titjhere:

- ★ ho hokahanya le ho sebetsa ka dikgopolo tse rutilweng pele
- ★ ho batlisa kgopolo e ntjha eo e leng yona e ka sehloohong bekeng eo
- ★ ho sebedisa kgopolo eo e leng yona e ka sehloohong bekeng eo.



Diketsahalong ...



Dikeletso bakeng sa ho hlophisa le ho laola diketsahalo tsa mmetse tsa dihlotshwana tse sebetsang ka botsona

- 👉 Baithuti ba nang le mefuta e fapaneng ya bokgoni ba lokela ho kgona ho phethela diketsahalo.
- 👉 Diketsahalo di lokela ho ba le moelelo bakeng sa baithuti.
- 👉 Diketsahalo di lokela ho hlaka le ho ba bonolo hore di ka phethelwa ntle le hore baithuti ba kope thuso ho titjhere.
- 👉 Haeba baithuti ba sebetsa butle, ba batlisa mabaka. Fetola kapa o lokise ketsahalo haeba ho hlokeha.
- 👉 Baithuti ba hloka ho ba le boikarabelo ba ho qeta diketsahalo ka bobona mme ha ba hloke ho kgathatsa titjhere ya tla beng a shebane le ketsahalo e tataiswang ke titjhere.
- 👉 Ruta baithuti melawana e bonolo bakeng sa seo ba lokelang ho se etsa le kamoo ba lokelang ho itshwara nakong ya diketsahalo tsa dihlotshwana: kamoo ba lokelang ho hlwekisa/ho phutha ha ba qetile ho sebetsa; kamoo ba ka itshwarang nakong ya ho fetola diketsahalo. Phetapheta melawana ho fihlela baithuti ba e tseba mme ba e latela ka ho iketsahalla. Sena se nka nako! Dula o sa fetohe. Kgalemela baithuti hantle haeba ba phephetsa melawana.

Diketsahalo tsa kgetho ya bolokohi

Diketsahalo tsa tlatsetso di lokela ho fuwa baithuti ba qetileng ketsahalo ya bona ya dihlotshwana pele nako ya mmetse e fela. Diketsahalo tsena di lokela ho sebetsa ho matlafatsa dikahare tsa mmetse tseo o ba

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.

rutileng tsona. Baithuti ba lokela ho kgetha ketsahalo ho tswa ho tse beilweng ke titjhere. Diketsahalo tse na di lokela ho tsepama ho mmetse, ho etsa mohlala, phazele, ho paka diboloko, ho taka, ho kenya mebala, ho bopa, ho hlophisa dibopeho kapa ho bapala bonketsisane.

Ho tlohela ketsahalo ho ya ho e nngwe (diphetoho)

Phetoho ke nako eo ka yona baithuti ba tlohelang ketsahalo ho ya ho e nngwe. Ho etsa mohlala, kamora hoba karolo ya tselase yohle ya mmetse e fele, phaposi ya borutelo e lokela ho phuthwa mme e lokisetswe karolo e latelang. Dinako tsa phetoho di lokela ho sebediswa ho etsa Mmetse, Puo ya Lapeng le Bokgoni ho tsa Bophelo, mohl. ho bala ka molomo, dipaterone tsa ho opa matsoho.

Matitjhere a hlophisang le ho laola diphetoho hangata ba ba le diphaposi tse kgutsitseng, tse hlophisehileng tse nang le baithuti ba thabileng, ba nang le tshebedisanommoho le ba sa sithabelang maikutlo.



Diketsahalong ...



Dikeletso bakeng sa ho hatella mmetse nakong ya phetoho

- ✎ Nea baithuti temoso e lekaneng pele ba hloka ho fetola diketsahalo, mohl. 'Kamora metsotso e mmedi re tliilo qetella karolo ena.'
- ✎ Fana ka ditaello tse hlakileng, mohl. 'Qalang pele ka ho phutha tseo le di etsang mme le eme moleng ka kgutso monyako/le dule ka sedikadikwe.'
- ✎ Sebedisa 'dikgohedi' tse kang ho bala makgetlo a ho opa matsoho, lenane la dipina kapa diraeme, le lenane la matshwao (ho bala ho ya hodimo/tlase).

Ho hlophisa le ho lokisetsa thuto ya mmetse

Ho na le dibeke tse ka bang 40 selemong. O tla hloka hore o hlophise le ho itokisa ka ho phethahala bakeng sa beke ka nngwe.

Beke e tlang pele ho thuto

- ★ Bala dikarolo tse tshwanetseng tsa *Tataiso ya Mareo* le *Tataiso ya Diketsahalo*. Tse na di hlalosa dikahare le dikgopolo tse tlang ho rutwa, mme di fana ka ditlhaliso bakeng sa diketsahalo le dipuisano tse loketseng.
- ★ Hlophisa le ho lokisa diketsahalo beke pele o tla di ruta.
- ★ Hlwaya tsepamo ya tekanyetso. (O ka fumana tlhahisoleseding e nngwe mabapi le tekanyetso leqepheng la 99.)
- ★ Lokisa disebediswa mme o hlophise phaposi ya borutelo bakeng sa beke e tlang.
- ★ Disebediswa tse ding di hloka ho bokellwa nako e sa le teng, mohl. mabokoso a mahe, bokahare ba dipampiri tsa ntlwana, ditshelo tsa yokate, dibotlolo tsa lebesa kapa dintho tse hlophiswang.

Bekeng eo

- ★ Tsepamisa maikutlo ho kutlwisiso ya lereo la mmetse le rutwang bekeng eo.
- ★ Bala karolo e lokelang ho *Tataiso ya Mareo*.
- ★ Letsatsi ka leng, lekola hore ebe o na le disebediswa tse hlokehang bakeng sa diketsahalo tsa letsatsi le hlhlamang.
- ★ Itlwaetse diketsahalo pele ho nako. Matitjhere ha a lokela ho itokisa ele hore baithuti ba se ba dutse ba emetse hore ketsahalo e qale.

The Grade R Maths programme resources

The Grade R Maths programme has four components.

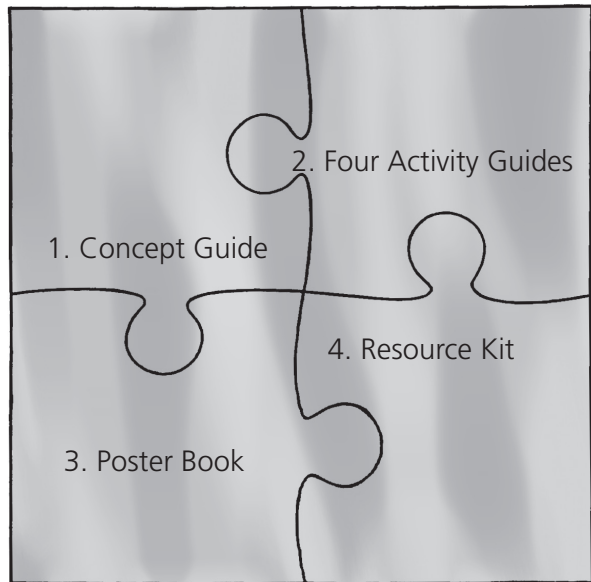


Figure 36 The components of the Grade R Maths programme

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.

Disebediswa tsa lenaneo la *Grade R Maths*

Lenaneo la *Grade R Maths* le na le dikarolo tse nne.



Setshwantsho sa 36 Dikarolo tsa lenaneo la *Grade R Maths*

Tataiso ya Mareo (buka ena)

Buka ena e fana ka:

- ★ dintlhatheo tsa lenaneo la *Grade R Maths* bakeng sa ho ruta mmetse ho baithuti ba banyenyane
- ★ tataiso ya kamoo o ka hlophisang phaposi ya hao ya borutelo bakeng sa ho ruta le ho ithuta ka katleho
- ★ ditlhaliso tsa kamoo o ka rutang mmetse Kereiting ya R
- ★ kakaretso ya dikahare tsa mmetse tse lokelang ho rutwa lenaneong la *Grade R Maths*
- ★ ditataiso bakeng sa ho sebedisa *Grade R Maths*
- ★ tlelosari.

Ditataiso tsa Diketsahalo

Ho na le *Ditataiso tsa Diketsahalo* tse nne – e le nngwe bakeng sa kotara ka nngwe ya sekolo. *Tataiso ya Diketsahalo* ka nngwe e kenyeletsa:

- ★ tjhebokakaretso ya tse tlang ho etswa kotareng
- ★ sehlooho sa karolo ya mareo a mmetse a lokelang ho shejwa bekeng ka nngwe
- ★ diketsahalo tse kgothaletswang bakeng sa beke ka nngwe: diketsahalo tsa tlelase yohle, le diketsahalo tsa dihlotshwana tsa boikemelo le tse tataiswang ke titjhere
- ★ dikeletso tsa ho ruta bakeng sa ho rala le ho hlophisa diketsahalo tsa mmetse
- ★ tlotlontswe ya mmetse e ithutwang diketsahalong tsa beke ka nngwe
- ★ tlhahisoleseding mabapi le disebediswa tse tlang ho hlokwa bakeng sa beke eo
- ★ disebediswa tse kang diraeme, dipina, dipale le dithempoleiti.

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

Buka ya Diphoustara

Buka ya Diphoustara ke buka e kgolo e nang le diphoustara tse leshome le motso o le mong. Diphoustara di etseditswe ho sebediswa diketsahalong tsa tlelase yohle le diketsahalo tsa dihlotshwana tse tataiswang ke titjhere. Di thusa ho hokanya mmetse le bophelo ba letsatsi le letsatsi mme di ka sebediswa ka ditsela tse fapaneng, mohl. bakeng sa ho bala dintho, ho buisana ka boemo le lehlakore, nako (tatelano ya diketsahalo) le ho rarolla mathata.

Khiti ya Disebediswa

Khiti ya Disebediswa e na le dintho tsa ho ithuta le ho ruta tsa bohlokwa tse tlang ho sebediswa nako le nako jwaloka karolo ya diketsahalo tse tataiswang ke titjhere. Khiti e fana ka disebediswa tse lekaneng bakeng sa sehlotshwana sa baithuti ba tsheletseng ho isa ho ba robedi. Khiti ka nngwe e na le tse latelang jwaloka ha ho bontshitswe ho Setshwantsho sa 4 leqepheng la 13:

- ★ dintho tsa ho bala, mohl. didiski tse mebala le dithupa, dibadi tsa ditholwana le tsa diphoofole, le diboloko tsa Unifix
- ★ letaese le leholohadi
- ★ dikgwele tse nang le difaha tsa dibopeho tse leshome
- ★ dikarate tsa dinomoro: matshwao a dinomoro (0–10) le dipalo tsa mantswe (ha ho letho–leshome)
- ★ diboloko tsa makgetha
- ★ dikarete tsa matheba.

Disebediswa tse ding

- ★ Ditokomane tsa leano la SLTK
- ★ Buka ya mosebetsi le disebediswa tse ding tsa Lefapha la Thuto ya Motheo.

Disebediswa tse ding (tse sa ajwang) tse hlokehang bakeng sa diketsahalo tsa *Grade R Maths* di kenyeletsa:

- ★ 'lebokoso la pizza'
- ★ tjhate ya bolelele
- ★ dikarete tsa ho bapala tse kgolohadi
- ★ letaese: le nang le dinomoro le dibopeho
- ★ tjelete ya ho bapadisa: dikhoine le ya dipampiri
- ★ khalendara ya selemo sena
- ★ watjhe e kgolo ya leboteng
- ★ sekala sa ho metha boima
- ★ diphapete
- ★ diboloko tsa dipaterone (diboloko tsa makgetha) le dikarete
- ★ boto ya diphekse le diphekse
- ★ mekotla ya dinawa
- ★ dibolo tse kgolo le tse nyane
- ★ difaha bakeng sa ho bala, ho hlopha, ho follela le ho etsa dipaterone (le marapo a dieta)
- ★ diboloko tsa ho aha le diboto
- ★ *Lego*: boholo le dibopeho tse fapaneng
- ★ dibapadiswa tsa ho aha
- ★ diphazele: dikotwana tse 8, 12, 20, 36 le 48
- ★ letsopa la ho bopa/hlama ya ho bapala
- ★ dikhathara tsa dikuku

- ★ 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.

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.

GLOSSARY

formative assessment

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



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.

- ★ mabokoso a khateboto a dibopeho le boholo bo fapaneng
- ★ dibotlolo le ditshelo tse fapaneng tsa polasetiki bakeng sa ho hlalosa le ho bapisa mothamo
- ★ dipapadi tsa mmetse: *Lotto, Ludo*, papadi ya *Snakes and Ladders*, diphazele, didomino (ho kenyeletsa dipapadi tsa mmala, sebopeho, dinomoro, tatelano, ho nyalanya, ho hlophisa le tsa kgopolo)
- ★ disebediswa tsa ho bapala ka lehlabathe le metsi
- ★ ho paka dikopi tsa boholo bo fapaneng
- ★ disebediswa tsa ho palamela, tsa botsitso, tsa ho swinka le dikgati
- ★ lebenkele la ho bapadisa le nang le dintho tse rekwang ka tjelete ya ho bapadisa
- ★ dibadi bakeng sa ho hlophisa dintho
- ★ mabokoso a ho bolokela: dilitara tse 40, dilitara tse 5 le dilitara tse 2.

Tekanyetso Kereiting ya R

Kereiting ya R, tekanyetso ke tshebetso e tswelang, e radilweng ya ho bokella, ho manolla le ho hlalosa tlhahisoleseding mabapi le moithuti. E lokela haholoholo ho **ba e tswelang** mme e be eo e seng ya semmuso. Ka mantswa a mang, tlhahisoleseding e bokelletsweng mabapi le kgatelopele ya baithuti nakong ya tekanyetso e lokela ho o thusa ho hlophisa le/kapa ho lokisa diketsahalo tsa ho ithuta. Kereiting ya R, tekanyetso e sebediswa ho etsa diqeto mabapi le tsela e nepahetseng ya ho tshehetsa ntshetsopele ya moithuti ka mong.

Tekanyetso ke lehokela pakeng tsa dikahare tsa thuto tsa SLTK, diketsahalo tsa ho ruta le ho ithuta. O keke wa lekanyetsa seo o sa se rutang. Sepheo sa tekanyetso ke ho:

- ★ fumana hore boemo ba moithuti ka mong ke bofe
- ★ tataisa ho hlophisa le ho bontsha tsela ya ho ruta
- ★ kgothaletsa kgatelopele e ntshetswang pele ya moithuti ka mong
- ★ thusa ho hlahisa ditlaleho tse molemo bakeng sa diphihlelo tsa moithuti.

TLELOSARI

tekanyetso e tswelang

tekanyetso e fanang ka tlhahisoleseding ha moithuti a ntse a ithuta mme e etsahala le ho lekanya kgatelopele ya moithuti



Diketsahalong ...



Dikeletso tsa tekanyetso

- 👏 Tekanyetso ha e a tshwanela ho etsa hore baithuti ba ikutlwe ba kgathatsehile kapa ba tshaba.
- 👏 Diketsahalo tsa tekanyetso di lokela ho tshwanela le ho lokela tsepamo ya maikutlo ya moithuti ka mong.
- 👏 Ha o ntse o shebelletse sehlotshwana sa baithuti ba tsheletseng ho isa ho ba robedi ketsahalong e tataiswang ke titjhere, baithuti ba bang ba lokela ho sebetsa ka boikemelo diketsahalong tsa dihlotshwana tsa bona diteisheneng tse fapaneng tsa tshebetso.
- 👏 Sebetsa ka sehlotshwana se le seng sa baithuti ba tsheletseng ho isa ho ba robedi letsatsi ka leng ho ketsahalo e itseng (ho ya ka lenane la baithuti ka tlelaseng). Ha baithuti ba sa ntse ba shebane le ketsahalo, shebella ka hloko moithuti ka mong sehlotshwaneng mme o nne o botse dipotso hore o tle o fumane seo ba se nahanang.
- 👏 Tlhahisoleseding e mabapi le seo baithuti ba se tsebang le ho ka se etsa (kapa 'bopaki') e lokela ho bokellwa ka ho tswela pele (kamehla) ha nako e ntse e tsamaya.
- 👏 Tlhahisoleseding e mabapi le seo o se boneng/elelletsweng e lokela ho rekotwa qetellong ya letsatsi, kamora nako ya ho ruta.

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.



Ho molemo ho sebedisa ditsela tse fapaneng tsa ho lekanyetsa baithuti. Mehlala e meng ke ena.

- ★ Shebella baithuti nakong ya diketsahalo tsa tlelase yohle, tsa dihlotshwana le ha ba bapala ka bolokolohi ka hare le ka ntle ho phaposi ya borutelo.
- ★ Rekota kutlwisiso ya baithuti ya mareo a itseng a mmetse nakong ya diketsahalo tse tataiswang ke titjhere le ka mora moo.
- ★ Dipotso le dipuisano mmoho le baithuti ka bonngwe kapa ka dihlotshwana tsa baithuti di ka o thutsa ho utlwisisa boemo le botebo ba menahano le ho fana ka mabaka ha baithuti.
- ★ Shebisa dintho tseo baithuti ba di etsang mme o rekote (o sebedisa ditshwantsho, metako, dintho le/kapa 'ho ngola'). Tsena di o bontsha tseo baithuti ba di utlwisisang le tseo ba di fihlelletseng.
- ★ Ho mamela le ho rekota dikarabo tsa baithuti (ka ho etsa, ho bua, ho ngola) ho o dumella ho etsa tekanyetso e tswellang.

O lokela ho lekanyetsa tse latelang ho baithuti bohle ka tsela e tswellang:

- ★ tsebo ya mmetse
- ★ kutlwisiso ya mmetse
- ★ bokgoni ba mmetse
- ★ dikarabelo bakeng sa ho rarolla mathata
- ★ ditsela tsa ho etsa dintho. (Baithuti ba sebedisa ditsela tsa bona tsa ho rarolla mathata a mmetse. Tsena di ka fapana haholo le mekgwa ya hao empa sena ha se bolele hore ha di a nepahala.)

Tekanyetso e tswellang e bohlokwa haholoholo bakeng sa ho thusa matitjhere ho rera diketsahalo, ho lekola kgatelopele ya baithuti le ho hlophisa tshehetso e eketsehileng bakeng sa baithuti ba nang le ditshita tsa ho ithuta. (O ka fumana tlhahisoleseding e nngwe mabapi le ditshita tsa ho ithuta leqepheng la 58 le la 61).

Disebediswa tsa tekanyetso

Kereiting ya R tsepamo ya tekanyetso ha se ho fana ka matshwao empa e le ho fana ka tlhaloso e phethahetseng le ho sala morao kgatelopele ya baithuti. Matitjhere a lokela ho sebedisa disebediswa tse latelang bakeng sa tekanyetso.

Buka ya kelohloko

Kereiting ya R titjhere o lokela ho ela baithuti hloko ka hare le ka ntle ho phaposi ya borutelo, nakong ya ho bapala ka bolokolohi le ya diketsahalo tse hlophisitsweng. Dikelohloko tsena di tla fa matitjhere tlhahisoleseding e hlokolotsi e lokelang ho tataisa moralo wa bona le ho kgetha mesebetsi. Nakong ya tsepamiso ya maikutlo ya mmetse, titjhere o tla sebetsa le sehlotshwana se le seng ka letsatsi le letsatsi. Titjhere o tla hlophisa ketsahalo e itseng e tsamaelanang le kgopolo e ho SLTK. Ha baithuti ba sa ntse ba shebane le ketsahalo ena, titjhere o tla shebella ka hloko moithuti ka mong mme a botse dipotso hore a fumane kutlwisiso ya kamoo baithuti ba nahanang le boemo ba bona ba kutlwisiso.

Hang ha baithuti ba se ba ile hae, titjhere o tla rekota tseo a di fumaneng ha a ne a etse hloko diketsahalo tsena le tse neng di sa hlophiswa. Ho molemo ho sebedisa buka ya indekse bakeng sa ho arola baithuti ho ya ka ditlhaku tsa pele tsa mabitso a bona.

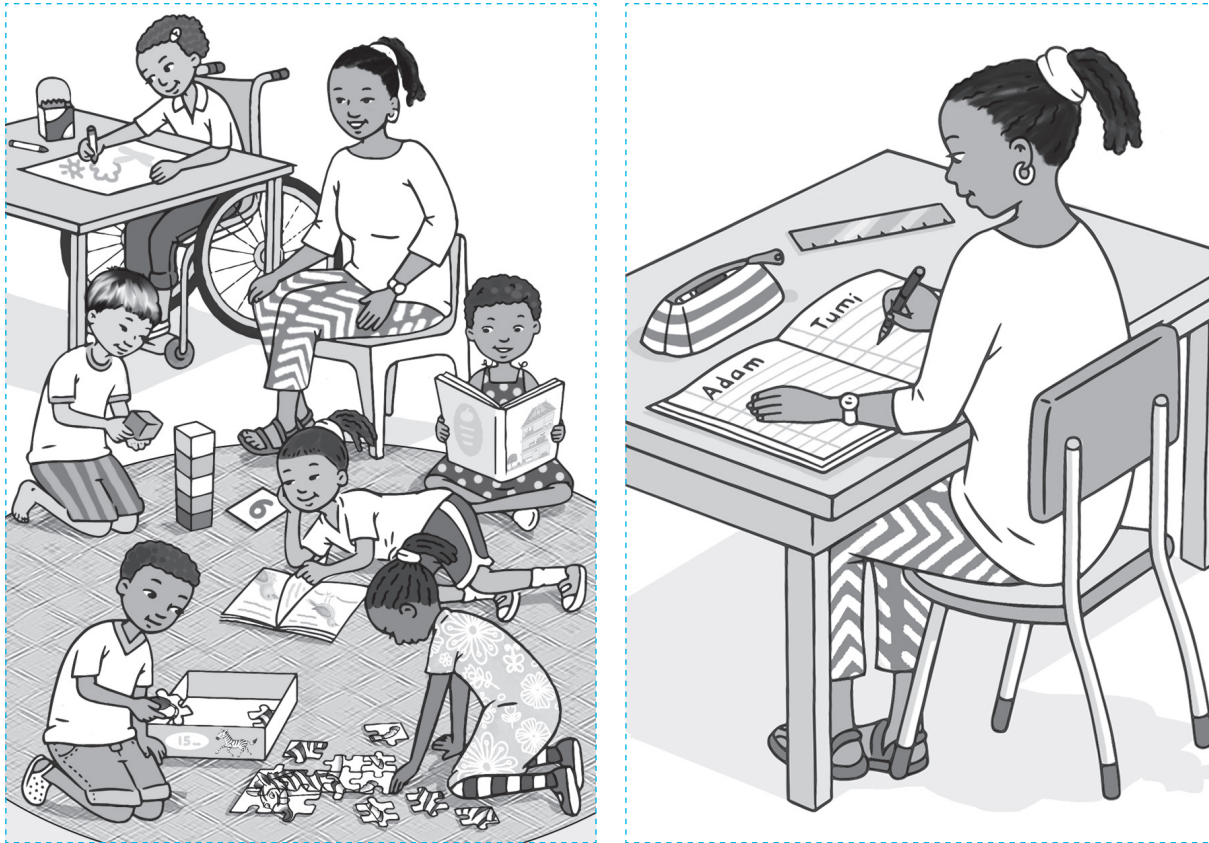


Figure 37 Observe learners then record your observations

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.



Setshwantsho sa 37 Shebella baithuti ka hloko mme ebe o rekota tseo o di elelletsweng

Manane a tekolo

Lenane la tekolo ke lenane la makgetha a tekanyetso le fanang ka kakaretso ya bokgoni le boitsebelo ba moithuti ka mong bakeng sa thuto ka nngwe. Qetellong ya *Tataiso ya Diketsahalo* ka nngwe ya lenaneo la *Grade R Maths* ho na le lenane la tekolo la tekanyetso bakeng sa kotara. Lenane lena la tekolo le fana ka kakaretso ya dintlha tse ntjha tse rutilweng kotareng eo. Titjhere a ka sebedisa matshwao ho bontsha boemo ba baithuti ba phihlello. Ho etsa mohlala, sebedisa letshwao la nepo haeba ho fihletswe bokgoni boo, sebedisa sefapano haeba bo sa fihlellwa, mme o sebedise letheba ho bontsha hore moithuti ha a eso fihlelle bokgoni hantle, empa o bontsha matshwao a hore o tseleng ya ho fihlella bokgoni boo.

Setshwantsho sa 38 se fana ka mohlala wa kamoo dintlha tseo titjhere a lokelang ho di rekota, di ka bewang ka teng. Mabitso a baithuti a rekotwa kholomong ya pele ho latela letsatsi la tekanyetso. Letshwao (✓ ✗ ●) le lokela ho rekotwa pela lebitso la moithuti ka mong ho tsamaelana le kgopolo kapa bokgoni bo ngotsweng kholomong ka nngwe. Sesebediswa sena sa tekanyetso se molemo feela haeba matitjhere a na le tsebo e ntle haholo ya moithuti ka mong, e thehilweng ho dikelohloko tse tswelang tsa bona le dinoutsu tseo ba di rekotileng dibukeng tsa bona tsa kelohloko.

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.

Diruburiki

Ruburiki ke sesebediswa se seng bakeng sa ho lekanyetsa boiphihlelo ba baithuti. Hape e na le lenane la makgetha a nang le tlhaloso ya maemo a tshebetso bakeng sa bokgoni ka bong. Tlhaloso ka nngwe e hlalosa seo moithuti a se etsang kapa a se hlahisang nakong ya mosebetsi wa tekanyetso bakeng sa lekgetha leo. Ruburiki e hloka ho fana ka ditlhaloso tse ngotsweng hantle le maemo a tshebetso ele hore di tle di nyalanngwe ka nepo le tshebetso ya moithuti. Ruburiki jwale e dumella matitjhere ho ela hloko haholo le ho se fetohe tekanyetso ya bona mme e tataisa moralo wa diketsahalo tse tlang tsa titjhere kaha e hlakisa matla le dikgeo ka hara tsebo ya baithuti.

Setshwantsho sa 39 se fana ka mohlala wa ruburiki bakeng sa ho rarolla mathata a ho kopanya ho fihlela ho 10 ka tsela e sebetsehang.

Makgetha	Ha ho phihlelo [1]	Phihlelo e tlase [2]	Phihlelo e kgotsofatsang [3]	Phihlelo e mahareng [4]	Phihlelo e ntle [5]	Phihlelo e kgabane [6]	Phihlelo e babatsehang [7]
O rarolla mathata ho kopanya ho fihlela ho 10.	Ha a kgone ho rarolla mathata ka ho a sebetsana le ona.	O kgona ho rarolla mathata ka ho a sebetsa, a sebedisa dintho tse tshwarehang.	O kgona ho rarolla mathata ka ho a sebetsa, empa ha a kgone ho hlalosa mokgwa wa tharollo.	O kgona ho rarolla mathata ka ho a sebetsa le ho hlalosa mokgwa wa tharollo ha a botswa.	O kgona ho rarolla mathata ka ho a sebetsa le ho hlalosa mokgwa wa tharollo ka boikemelo.	O kgona ho rarolla mathata ka ho a sebetsa mme o kgona ho hlalosa mokgwa wa tharollo.	O kgona ho rarolla mathata ka ho a sebetsa mme o kgona ho hlalosa mokgwa wa tharollo mme a etse tlhahiso ya mekgwa e meng hape.

Setshwantsho sa 39 Mohlala wa ruburiki

Dihlalosi tsa maemo tse ho ruburiki di ka hokelwa ho dikhoutu tsa ho lekanya. Lefapha la Thuto ya Motheo (DBE) le fana ka khoutu ya ho lekanya le tlhaloso ya bokgoni, mme le di hokela ho diperesente (sheba Setshwantsho sa 40). Bakeng sa mabaka a tleho dikhoutu tsa ho lekanya le dihloso di ka nna tsa fetolelwa ho 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 ho lekanya	Tlhaloso ya bokgoni	Diperesente
7	Phihlelo e babatsehang	80–100
6	Phihlelo e kgabane	70–79
5	Phihlelo e ntle	60–69
4	Phihlelo e mahareng	50–59
3	Phihlelo e kgotsofatsang	40–49
2	Phihlelo e tlase	30–39
1	Ha ho phihlelo	0–29

Setshwantsho sa 40 Khoutu ya ho lekanya

Kereiting ya R tekanyetso e shebane haholoholo le ho hlalosa tshebetso ho ena le ho e hlahloba kgahlanong le diperesente. Ditlaleho tse fang batswadi le matitjhere a mang ditlhaloso tse ruileng tsa boitshwaro le seo baithuti ba se hlahisang, di molemo haholo bakeng sa ho lekanyetsa tshebetso ho feta diperesente. Ho molemo ho qoba ditekanyetso tse mpe tsa hlahlobo tse etsang hore baithuti ba hlolehe dithutong e sa le qalong. Tekanyetso e lokela ho sebediswa ho fumana lesedi boemong ba moithuti ba tshebetso hore ho tle ho fetolwe moralo le ho ruta bakeng sa ho kenyeletsa le ho kgothaletsa moithuti ka mong ka tlelaseng.

O tla tlameha ho rekota diphumano tsa hao tsa tekanyetso le 'bopaki' bo bong ka hara jenale, le leqepheng la phumano kapa lenaneng la tekolo. Ka tsela ena, hara selemo, ho bopeha hanyane hanyane setshwantsho se felletseng sa moithuti ka mong, mmoho le matla le bofokodi ba hae.

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:

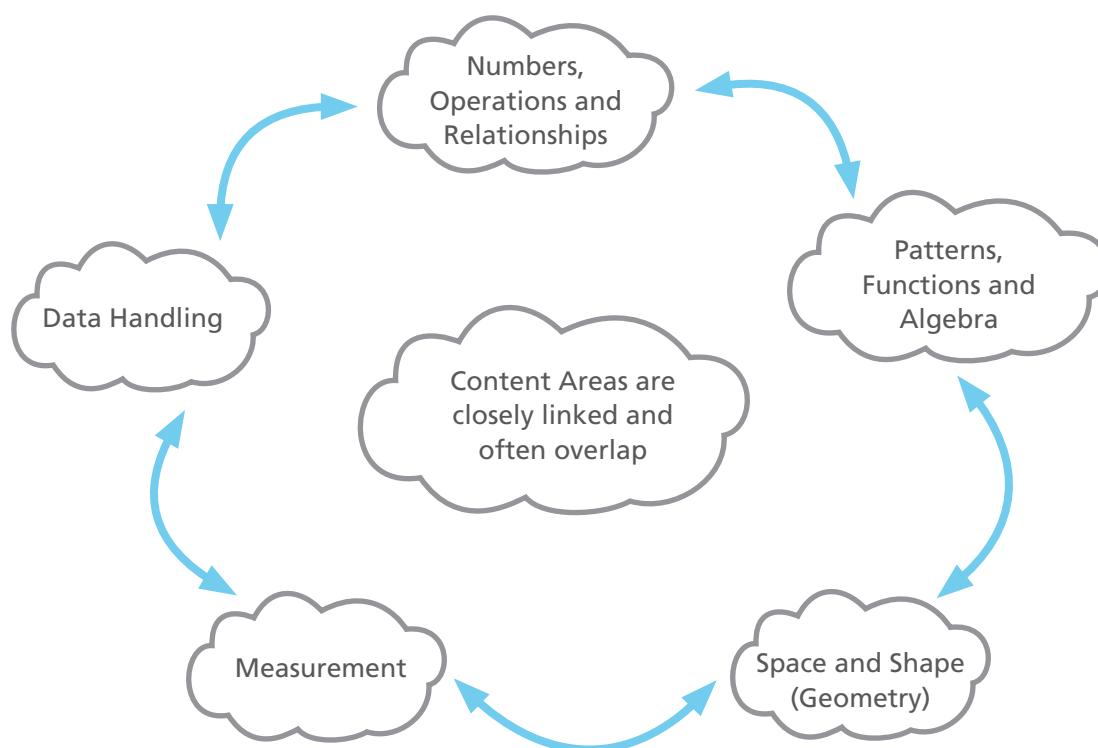


Figure 4.1 Grade R CAPS Mathematics Content Areas

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

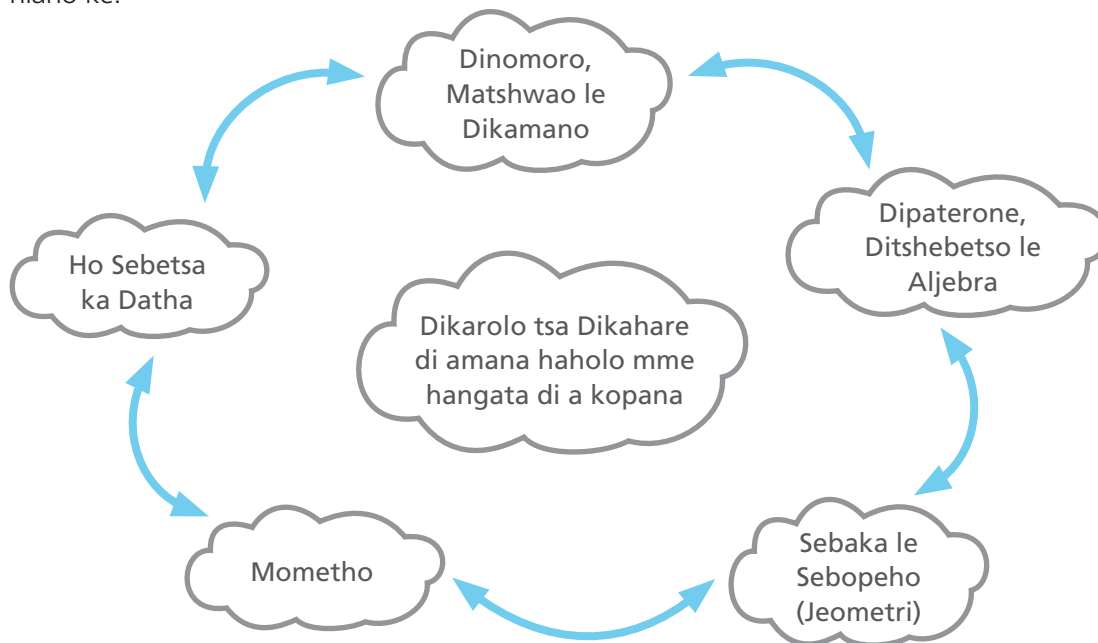
Mmetse Kereiting ya R

Selelekela

Karolo ena ya *Tataiso ya Mareo* e fana ka tšhebokakaretso ya Dikarolo tsa Dikahare tsa SLTK sa Mmetse wa Kereiti ya R mme:

- ★ e fana ka mehopolo e etsehang bakeng sa ho kenngwa tšhebetsong ka phaposing ya borutelo
- ★ e hlalosa mareo a mmetse le dikahare tseo matitjhere a di hlohang bakeng sa ho utlwisisa
- ★ e hlakisa ntshetsopele ya tsebo ya mmetse ho baithuti ba banyenyane.

Hape e fana ka tlhaloso e kenelletseng ya dikahare tsa Kotara ya 1–4 tsa Kereiti ya R (maqephe ana 114–137). Dikarolo tsa Dikahare tsa SLTK tse hlano ke:



Setshwantsho sa 4 | Dikarolo tsa Dikahare tsa Mmetse wa SLTK Kereiti ya R

Karolo ka nngwe ya Dikahare e arotswe ka dihlooho. Bakeng sa sehlooho ka seng ho tsena, karolo ena ya *Tataiso ya Mareo* e fana ka:

- ★ tlhaloso ya sehlooho, e kenyeletsang ho hlwaya dikgopolo tse itseng le bokgoni bo itseng
- ★ ho ruta ditlhaliso tse ka hara mabokoso a 'Diketsahalo'
- ★ tlhaloso ya mareo a mmetse.

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.

Esitana le ha Dikarolo tsa Dikahare di bontsha metjha e itseng ya ntshetsopele ya mmetse, di amana haholo mme ka nako tse ding ho ba le moo di tshwanang ka nako ya diketsahalo. Ho etsa mohlala, ha baithuti ba tsepamisa maikutlo mosebetsing wa ho metha, ba tla kopanya mefuta ya bokgoni ho tswa Sebakeng se seng sa Dikahare, ho etsa mohlala, Dinomoro, Matshwao le Dikamano, mme ebe ba sebedisa tsebo ya bona ya dinomoro, ho bala le bokgoni ba ho bapisa. Baithuti ba na le menyetla ya ho sebedisa tsebo ya bona le bokgoni dibakeng tse fapaneng.



Diketsahalong ...



Ha matitjhere a ntle a tsepamitse maikutlo ka ho ikgetha Dibakeng tsena tsa Dikahare ka nako ya tsepamiso ho mmetse, ba lokela hape ho hopola ho sebedisa menyetla e meng hantle lenaneong la letsatsi le letsatsi bakeng sa ho:

- 👉 sebedisa puo ya mmetse ho tsebisa le ho hatella dikgopolo hape
- 👉 bontsha mehlala ya tshebediso ya letoto le batsi la tlotlontswe e tsamaelanang le nomoro, sebopeho, sebaka, mometho le ho sebetsa ka datha.

Ditsela tse ding tse bobebe ke tsena tsa ho etsa sena:

- 👉 Fana ka dintho tse rekilweng, tse resaekelwang le tsa tlhaho bakeng sa baithuti hore ba di hlophise, ba di bapise le ho di bea ka tatelano.
- 👉 Fana ka disebediswa bakeng sa ho tshwantshisa ho reka le ho rekisa, ho kala boima le ho metha.
- 👉 Etsa disete tsa ditshwantsho ho bontsha tatelano ya diketsahalo motsheare le maemo a lehodimo hara beke.
- 👉 Shebellang le ho buisana ka dibopeho le dipaterone ditselaneng, hodima terata, ditshingwaneng tsa meroho.
- 👉 Hlophisa diketsahalo le dipapadi moo baithuti ba sebedisang bokgoni ba bona ba mmele le ba mmetse ho latela le ho fana ka ditshupiso.
- 👉 Hokanya dipale le papadi ya ka ntle ho mmetse.

Dikahare tsa Mmetse

Tjhebokakaretso ya dikahare e latelang e fana ka tafole ya dikahare tsa *Grade R Maths* tse lokelang ho rutwa selemong sa Kereiti ya R. E bontsha hore ke dikahare dife tse lokelang ho rutwa kotareng ka nngwe.

- ★ Mongolo o botala ba lehodimo ke dikahare tse tswang ho SLTK tsa Kereiti ya R bakeng sa Mmetse.
- ★ Ditlhaloso tsa mongolo le dikahare tse ngotsweng ka botsho di kentswe bakeng sa ho atolosa le ho ahella ho SLTK.
- ★ Dihlooho di hlahlamisitswe ho bontsha kgatelopele ya ntshetsopele ho tloha sehloohong se le seng ho ya ho se seng.

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)	<p>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</p>	<p>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</p>	<p>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</p>	<p>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’</p>
1.2	Count forwards and backwards Oral or rote counting (rhythmic)	<p>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</p>	<p>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</p>	<p>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</p>	<p>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</p>

1. DINOMORO, DITSHEBETSO le DIKAMANO					
	SEHLOOHO	KOTARA YA 1	KOTARA YA 2	KOTARA YA 3	KOTARA YA 4
HO BALA DINTHO					
1.1	Bala dintho (Akanya mme o bale dintho ho ba le kutlwisiso ya nomoro)	<p>Letoto la dinomoro: 1–5 Bala ka bonngwe: neeletsano pakeng tsa batho ba babedi: ditho tsa mmele le dintho tse tshwarehang Tsebisa tjhate ya Mothusi Tsebisa lereo la tekanyetso (ho noha ho nang le moelelo) Dikarete tsa matheba: - hlwaya palo ya matheba dikareteng, ho didomino le mataeseng (1–5) - nyalanya dintho le ditshwantsho le dikarete tsa matheba Bala 'di kae' o sebedisa menwana, dikarete tsa matheba, dintho tse ka hare le tse ka ntle ho phaposi ya borutelo, ditshwantsho le diketso, mohl. ho opa matsoho, ho tila ka maoto</p>	<p>Letoto la dinomoro: 1–7 Akanya le ho bala Bala ka bonngwe: neeletsano pakeng tsa batho ba babedi: ditho tsa mmele le dintho tse tshwarehang Hatella tjhate ya Mothusi Dikarete tsa matheba: - hlwaya palo ya matheba dikareteng, ho didomino le mataeseng (1–6) - nyalanya dintho ho ditshwantsho le dikarete tsa matheba Sebedisa maemo a fapaneng, dintho le diketsahalo bakeng sa ho bala hore 'di kae'. Menwana, dikarete tsa matheba, difaha tsa dibopeho tse leshome, dintho tse ding tse ka hare le tse ka ntle ho phaposi ya borutelo, ditshwantsho le diketso, mohl. ho opa matsoho, ho tila ka maoto Bontsha 'eketsa ka nngwe/fokotsa ka nngwe' Opa makgetlo a mangata/makgetlo a mmalwa</p>	<p>Letoto la dinomoro: 1–10 Akanya le ho bala Bala ka bonngwe: neeletsano pakeng tsa batho ba babedi; bala kaofela: - ditho tsa mmele - dintho tse tshwarehang Hatella tjhate ya Mothusi Dikarete tsa matheba: eelllwa dipokello tsa matheba 1–5 le ho fihlela ho 3 ka hodimo dikareteng, mataeseng le ho didomino Qala nomorong eo ho fanweng ka yona mme o 'tswela pele' o tlola pela tsela ya dinomoro, o sebedisa difaha tsa dibopeho tse leshome, dikarete tsa ditshwantsho, terata ya ho aneha dinomoro Bontsha 'eketsa ka nngwe/fokotsa ka nngwe; eketsa ka tse pedi/fokotsa ka tse tharo' Opa makgetlo a mangata/makgetlo a mmalwa: - ke makgetlo afe a ho opa a mangata/mmalwa, a mangata ho feta/mmalwa ho feta</p>	<p>Letoto la dinomoro: 0–10 le ho feta Akanya le ho bala Bala ka bonngwe: neeletsano pakeng tsa batho ba babedi; bala kaofela: - ditho tsa mmele - dintho tse tshwarehang Hatella tjhate ya Mothusi Dikarete tsa matheba: eelllwa dipokello tsa matheba 1–5 le ho fihla ho 5 letaeseng (1–6) le ho didomino Qala nomorong eo ho fanweng ka yona mme o 'tswela pele' o tlola pela tsela ya dinomoro, o sebedisa difaha tsa dibopeho tse leshome, dikarete tsa ditshwantsho, terata ya ho aneha dinomoro Bontsha 'eketsa ka nngwe/fokotsa ka nngwe; eketsa ka tse pedi/fokotsa ka tse tharo' Opa makgetlo a mangata/makgetlo a mmalwa: - ke makgetlo afe a ho opa a mangata/mmalwa, a mangata ho feta/mmalwa ho feta Se bolelwang ke haholetho (noto) '0'</p>
1.2	Bala o eya pele le morao Ho bala ka molomo kapa ka modumo (ka morethetho)	<p>Ho bala o eya pele: 1–10 Ho bala o eya morao: 5–1 Ho bala ha tshohanyetso o sebedisa diraeme le dipina tsa dinomoro, ditlwaelo tsa kamehla, metsamao ya mmele, jj. Bala ka bonngwe Letoto la dinomoro: 1</p>	<p>Ho bala o eya pele: 1–15 Ho bala o eya morao: 7–1 Ho bala ha tshohanyetso o sebedisa diraeme le dipina tsa dinomoro, ditlwaelo tsa kamehla, metsamao ya mmele, jj. Bala ka bonngwe Letoto la dinomoro: 1–4</p>	<p>Ho bala o eya pele: 1–20 Ho bala o eya morao: 10–1 Ho bala ha tshohanyetso o sebedisa diraeme le dipina tsa dinomoro, ditlwaelo tsa kamehla, metsamao ya mmele, jj. Bala ka bonngwe Letoto la dinomoro: 1–7</p>	<p>Ho bala o eya pele: 0–20 le ho feta Ho bala o eya morao: 10–0 Ho bala ha tshohanyetso o sebedisa diraeme le dipina tsa dinomoro, ditlwaelo tsa kamehla, metsamao ya mmele, jj. Bala ka: bonngwe, bopedi Letoto la dinomoro: 0–10</p>

	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

	SEHLOOHO	KOTARA YA 1	KOTARA YA 2	KOTARA YA 3	KOTARA YA 4
1.3	<p>Matshwao a dinomoro le mabitso a dinomoro</p> <p>Lemoha le ho hlwaya matshwao a dinomoro le mabitso a dinomoro</p>	<p>Matshwao a dinomoro: 1, 2, 3</p> <p>Mabitso a dinomoro: nngwe, pedi, tharo</p> <p>Emela dinomoro o sebedisa:</p> <ul style="list-style-type: none"> - mmele (khaenesthetiki) - dintho (tse tshwarehang) - ditshwantsho, metako (tse sa tshwareheng ka ho phethahala) - dikarete tsa matheba (tse sa tshwareheng ka ho phethahala) <p>Nyalanya le letshwao la nomoro (e sa tshwareheng) le lebitso la nomoro</p> <p>Letshwao la nomoro: 1</p> <p>Lebitso la nomoro: nngwe</p>	<p>Matshwao a dinomoro: 4 le 5</p> <p>Mabitso a dinomoro: nne, hlano</p> <p>Emela dinomoro o sebedisa:</p> <ul style="list-style-type: none"> - mmele (khaenesthetiki) - dintho (tse tshwarehang) - ditshwantsho, metako (tse sa tshwareheng ka ho phethahala) - dikarete tsa matheba (tse sa tshwareheng ka ho phethahala) <p>Nyalanya le letshwao la nomoro (e sa tshwareheng) le lebitso la nomoro</p> <p>Hatella: 1, 2, 3</p> <p>Hatella: nngwe, pedi, tharo</p> <p>Letshwao la nomoro: 2, 3, 4</p> <p>Lebitso la nomoro: pedi, tharo, nne</p>	<p>Matshwao a dinomoro: 6, 7, 8</p> <p>Mabitso a dinomoro: tshelela, supa, robedi</p> <p>Emela dinomoro o sebedisa:</p> <ul style="list-style-type: none"> - mmele (khaenesthetiki) - dintho (tse tshwarehang) - ditshwantsho, metako (tse sa tshwareheng ka ho phethahala) - dikarete tsa matheba (tse sa tshwareheng ka ho phethahala) <p>Nyalanya le letshwao la nomoro (e sa tshwareheng) le lebitso la nomoro</p> <p>Hatella: 1, 2, 3, 4, 5</p> <p>Hatella: nngwe, pedi, tharo, nne, hlano</p> <p>Letshwao la nomoro: 5, 6, 7</p> <p>Lebitso la nomoro: hlano, tshelela, supa</p>	<p>Letshwao la nomoro: 0 ho isa ho 10</p> <p>Lebitso la nomoro: haholetho (noto), robedi, robong, leshome</p> <p>Emela dinomoro o sebedisa:</p> <ul style="list-style-type: none"> - mmele (khaenesthetiki) - dintho (tse tshwarehang) - ditshwantsho, metako (tse sa tshwareheng ka ho phethahala) - dikarete tsa matheba (tse sa tshwareheng ka ho phethahala) <p>Nyalanya le letshwao la nomoro (e sa tshwareheng) le lebitso la nomoro</p> <p>Hatella dinomoro tsohle</p>
HO ELELLWA DINOMORO					
1.4	<p>Sebedisa dinomoro dibakeng tse tlwaelehileng</p>	<p>Sebedisa dinomoro dibakeng tse tlwaelehileng:</p> <ul style="list-style-type: none"> - dilemo - dinomoro ditshwantshong le dikareteng tsa matheba - dipapadi tsa dikarete tsa dinomoro - rejistara ya ba teng 	<p>Sebedisa dinomoro dibakeng tse tlwaelehileng:</p> <ul style="list-style-type: none"> - aterese - dinomoro ditshwantshong le dikareteng tsa matheba - dipapadi tsa dikarete tsa dinomoro - dinomoro ho dipapatso/diphamfolete/dikarete tsa matsatsi a tswalo - rejistara ya ba teng 	<p>Sebedisa dinomoro dibakeng tse tlwaelehileng:</p> <ul style="list-style-type: none"> - aterese, dinomoro tsa boikopanyo - letsatsi la tlhaho - dinomoro ditshwantshong le dikareteng tsa matheba - dipapadi tsa dikarete tsa dinomoro - dinomoro ho dipapatso/diphamfolete/dikarete tsa matsatsi a tswalo - rejistara ya ba teng 	<p>Sebedisa dinomoro dibakeng tse tlwaelehileng:</p> <ul style="list-style-type: none"> - aterese, dinomoro tsa boikopanyo - dinomoro ditshwantshong le dikareteng tsa matheba - dipapadi tsa dikarete tsa dinomoro - dinomoro ho dipapatso/diphamfolete/dikarete tsa matsatsi a tswalo - rejistara ya ba teng
MOELELO WA DINOMORO (DIKAMANO)					
Hlalosa, bapisa le ho bea dinomoro ka tatelano					
1.4	<p>Hlwaya le ho hlalosa dinomoro tse felletseng</p>	<p>Letoto la dinomoro: 1–3</p> <p>Hlwaya le ho hlalosa dinomoro tse felletseng ho fihla ho 1, 2, 3 o sebedisa dipokello le matshwao (e feta ka nngwe, e ka tlase ka nngwe; pele, kamora, pakeng tsa)</p> <p>Letoto la dinomoro: 1</p>	<p>Letoto la dinomoro: 1–5</p> <p>Hlwaya le ho hlalosa dinomoro tse felletseng 4, 5 o sebedisa dipokello le matshwao</p> <p>Hatella dinomoro 1–3</p>	<p>Letoto la dinomoro: 1–8</p> <p>Hlwaya le ho hlalosa dinomoro tse felletseng 6, 7, 8 o sebedisa dipokello le matshwao</p> <p>Hatella dinomoro 1–5</p> <p>Letoto la dinomoro: 1–7</p>	<p>Letoto la dinomoro: 0–10</p> <p>Hlwaya le ho hlalosa dinomoro tse felletseng 0, 9, 10</p> <p>Hatella dinomoro 1–8</p>

TOPIC	TERM 1	TERM 2	TERM 3	TERM 4
Compare numbers	<p>Compare which of two given collections of objects are:</p> <ul style="list-style-type: none"> - big, small - bigger, smaller - biggest, smallest <p>Order more than two given collections of objects from smallest to biggest and biggest to smallest</p> <p>Many and fewer, e.g. incidental clapping, snack time, sharing equipment</p>	<p>Compare which of two given collections of objects are:</p> <ul style="list-style-type: none"> - big, small - bigger, smaller - biggest, smallest <p>More than, less than, equal to</p> <p>Many and fewer, e.g. incidental clapping</p>	<p>More than, less than, equal to</p> <p>Many and fewer</p> <p>Ask questions: 'Which was most/least?'</p>	<p>More than, less than, equal to</p> <p>Many and fewer</p> <p>Ask questions: 'Which was most/least?'</p>
		<p>Make equal groups (sets) of objects, e.g. children or objects in the classroom</p>	<p>Use objects to make equal groups (sets)</p>	<p>Use objects to make equal groups (sets)</p>
	<p>Breaking down and building up collections of 2 and 3, e.g. 3 could be:</p> <p>1 and 1 and 1 OR 2 and 1 OR 1 and 2 OR nothing (zero) and 3</p>	<p>Breaking down and building up collections of 4 and 5, e.g. 4 could be:</p> <p>1 and 1 and 1 and 1 OR 3 and 1 OR 2 and 2 OR nothing (zero) and 4</p>	<p>Use manipulatives to investigate and develop strategies for breaking down and building up collections to 8</p>	<p>Use manipulatives to investigate and develop strategies for breaking down and building up collections to 10</p>
Order (sequence) numbers	<p>Order more than two given collections of objects from smallest to biggest and biggest to smallest</p>	<p>Order more than two given collections of objects from smallest to biggest and biggest to smallest</p>	<p>Order collections of objects from smallest to biggest and biggest to smallest</p>	<p>Order collections of objects from smallest to biggest and biggest to smallest</p> <p>Match number symbol card to collections</p>
	<p>Incidental ordering of numbers</p> <p>'What comes next, after, between':</p> <ul style="list-style-type: none"> - number/washing line - number track or ladder - number cards 	<p>Place number symbols in the correct counting order</p> <p>'What comes next, after, between':</p> <ul style="list-style-type: none"> - number/washing line - number track or ladder - number cards 	<p>Place number symbols in the correct counting order</p> <p>'What comes next, after, between':</p> <ul style="list-style-type: none"> - number/washing line - number track or ladder - number cards 	<p>Incidental: Number range: 0–10</p> <p>Place number symbols in the correct counting order</p> <p>'What comes next, after, between':</p> <ul style="list-style-type: none"> - number/washing line - number track or ladder - number cards

SEHLOOHO	KOTARA YA 1	KOTARA YA 2	KOTARA YA 3	KOTARA YA 4
Bapisa dinomoro	Bapisa hore ke efe ya dipokello tse pedi tse fanweng tsa dintho e: - kgolo, nyane - kgolo ho feta, nyane ho feta - kgolohadi, nyane ho fetisisa Hlahlamanya dipokello tse fetang tse pedi tsa dintho ho tloha ho e nyane ka ho fetisisa ho isa ho e kgolohadi le e kgolohadi ho isa ho e nyane ka ho fetisisa Tse ngata le tse mmalwa, mohl. ho opa matsoho ha tshohanyetso, nako ya seneke, ho abelana ka disebediswa	Bapisa hore ke efe ya dipokello tse pedi tse fanweng tsa dintho e: - kgolo, nyane - kgolo ho feta, nyane ho feta - kgolohadi, nyane ho fetisisa Ho feta, ka tlase ho, lekana le Tse ngata le tse mmalwa, mohl. ho opa ha tshohanyetso	Ho feta, ka tlase ho, lekana le Tse ngata le tse mmalwa Botsa dipotso: 'Ke efe e nang le tse ngata ka ho fetisisa/mmalwa ka ho fetisisa?'	Ho feta, ka tlase ho, lekana le Tse ngata le tse mmalwa Botsa dipotso: 'Ke efe e nang le tse ngata ka ho fetisisa/mmalwa ka ho fetisisa?'
		Etsa dihlopha tse lekanang (disete) tsa dintho, mohl. bana kapa dintho ka phaposing ya borutelo	Sebedisa dintho ho etsa dihlopha tse lekanang (disete)	Sebedisa dintho ho etsa dihlopha tse lekanang (disete)
	Ho heletsa le ho aha dipokello tsa 2 le 3, mohl. 3 e ka nna ya eba: 1 le 1 le 1 KAPA 2 le 1 KAPA 1 le 2 KAPA letho (haholetho) le 3	Ho heletsa le ho aha dipokello tsa 4 le 5, mohl. 4 e ka nna ya eba: 1 le 1 le 1 le 1 KAPA 3 le 1 KAPA 2 le 2 KAPA letho (haholetho) le 4	Sebedisa dintho tse tshwarehang ha bonolo ho fuputsa le ho ntshetsa pele mawa bakeng sa ho heletsa le ho aha dipokello ho fihla ho 8	Sebedisa dintho tse tshwarehang ha bonolo ho fuputsa le ho ntshetsa pele mawa bakeng sa ho heletsa le ho aha dipokello ho fihla ho 10
Hlophisa (bea ka tatelano) dinomoro	Hlahlamanya dipokello tse fetang tse pedi tsa dintho ho tloha ho e nyane ka ho fetisisa ho isa ho e kgolohadi le e kgolohadi ho isa ho e nyane ka ho fetisisa	Hlahlamanya dipokello tse fetang tse pedi tsa dintho ho tloha ho e nyane ka ho fetisisa ho isa ho e kgolohadi le e kgolohadi ho isa ho e nyane ka ho fetisisa	Bea ka tatelano/ hlahlamanya dipokello tsa dintho ho tloha ho e nyane ka ho fetisisa ho isa ho e kgolohadi le e kgolohadi ho isa ho e nyane ka ho fetisisa	Bea ka tatelano/ hlahlamanya dipokello tsa dintho ho tloha ho e nyane ka ho fetisisa ho isa ho e kgolohadi le e kgolohadi ho isa ho e nyane ka ho fetisisa Nyalanya karete ya letshwao la nomoro ho pokeletso
	Ho hlophisa dinomoro ha tshohanyetso 'Ke eng se latelang, se tlang kamora, dipakeng': - molapalo/mola wa ho aneha - motjha wa dinomoro kapa leri - dikarete tsa dinomoro	Bea matshwao a dinomoro ka tlhahlamano e nepahetseng ya ho bala 'Ke eng se latelang, se tlang kamora, dipakeng': - molapalo/mola wa ho aneha - motjha wa dinomoro kapa leri - dikarete tsa dinomoro	Bea matshwao a dinomoro ka tlhahlamano e nepahetseng ya ho bala 'Ke eng se latelang, se tlang kamora, dipakeng': - molapalo/mola wa ho aneha - motjha wa dinomoro kapa leri - dikarete tsa dinomoro	Ha tshohanyetso: Letoto la dinomoro: 0–10 Bea matshwao a dinomoro ka tlhahlamano e nepahetseng ya ho bala 'Ke eng se latelang, se tlang kamora, dipakeng': - molapalo/mola wa ho aneha - motjha wa dinomoro kapa leri - dikarete tsa 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			

	SEHLOOHO	KOTARA YA 1	KOTARA YA 2	KOTARA YA 3	KOTARA YA 4
	Dinomoro tsa boemo	Ba fumana ka tshohanyetso temoho ya ntho ya pele, ya bobedi, ya boraro ... ya ho qetela, e latelang Tsebisa ka: - nako ya diphomoso/ seneke, tlwaelo ya ho sebedisa matlwana - maemong a kamehla, dithutong tsohle, ho ema meleng, mohl. 'Ke mang ya bileng wa pele/ho qetela/wa bobedi ho kena monyako'	Ba fumana ka tshohanyetso temoho ya ntho ya pele, ya bobedi, ya boraro, ya bone, ya ho qetela, e latelang Maemong a kamehla: ditlwaelo tsa letsatsi le letsatsi – ho ema meleng, nako ya seneke, tlwaelo ya ho sebedisa ntlwana Hokahanya: Bokgoni ba Bophelo, kgolo mmeleng le diketsahalo tsa bonono (moo ho lokelang), diketsahalo tsa ka ntle, mohl. mabelo Bea ka mola dintho kapa dintho tse tshwarehang ha bonolo mme le buisane ka boemo	Ba fumana ka tshohanyetso temoho ya ntho ya pele, ya bobedi, ya boraro, ya bone, ya bohlanano, ya ho qetela, e latelang Hatella hape dinomoro tsa boemo tlwaetsong ya letsatsi le letsatsi mme o di kenyeletse diketsahalong tsa motsheare le tsa ka ntle, mohl. mabelo Bea baithuti le dintho moleng mme le hlwaye boemo ba tatelano ho ya nqa e le nngwe, mohl. le letshehadi ho ya ho le letona	Ba fumana ka tshohanyetso temoho ya ntho ya pele, ya bobedi, ya boraro, ya bone, ya bohlanano, ya botshelela, ya ho qetela, e latelang Hatella hape dinomoro tsa boemo tlwaetsong ya letsatsi le letsatsi mme o di kenyeletse diketsahalong tsa motsheare le tsa ka ntle, mohl. mabelo Bea baithuti le dintho moleng mme le hlwaye boemo ba tatelano ho ya nqa tse pedi, mohl. le letshehadi ho ya ho le letona le le letona ho ya ho le letshehadi
1.5	Sekgeo	Ha ho dikahare tsa SLTK bakeng sa Kereiti ya R (tsepama ho mareo a dinomoro 1–9 le haholetho, 1.1 le 1.4)			
RAROLLA MATHATA HO YA KA MAEMO					
1.6	Mawa a ho rarolla mathata	Letoto la dinomoro: 1–3 Rarolla mathata diketsahalong tsa kamehla O sebedisa mekgwa e latelang: - disebediswa tse tshwarehang, mohl. dibadi - ho bala tsohle ka bonngwe	Letoto la dinomoro: 1–5 Rarolla mathata diketsahalong tsa kamehla O sebedisa mekgwa e latelang: - disebediswa tse tshwarehang, mohl. dibadi - leri ya dinomoro tse tshwarehang - difaha tsa dibopeho tse leshome - ho bala tsohle ka bonngwe Letoto la dinomoro: 1–4	Letoto la dinomoro: 1–8 Rarolla mathata diketsahalong tsa kamehla O sebedisa mekgwa e latelang: - disebediswa tse tshwarehang, mohl. dibadi - leri ya dinomoro tse tshwarehang - difaha tsa dibopeho tse leshome - ho bala tsohle ka bonngwe - ho bala ho ya pele Letoto la dinomoro: 1–7	Letoto la dinomoro: 0–10 Rarolla mathata diketsahalong tsa kamehla O sebedisa mekgwa e latelang: - disebediswa tse tshwarehang, mohl. dibadi - leri ya dinomoro tse tshwarehang - difaha tsa dibopeho tse leshome - ho bala tsohle ka bonngwe - ho bala ho ya pele Letoto la dinomoro: 0–10
1.7	Ho kopanya le ho tlosa Ho rarolla mathata ka molomo (dipalo tsa pale) mme o hlalose ditharollo tsa hao tsa mathata a kenyeletsang ho kopanya le ho tlosa ka dikarabo tse fihlang ho 10	Fuputsa ho kopanya le ho tlosa diketsahalong tsa kamehla ka tsebediso ya dintho tse tshwarehang ha bonolo le dipale Rarolla ka molomo mathata a kenyeletsang dinomoro 1–3 o sebedisa dibadi, dipale, ditshwantsho	Rarolla ka molomo mathata a kenyeletsang dinomoro 1–5 o sebedisa dintho, dipale, ditshwantsho Sebedisa dibadi mme o rarolle ka molomo mathata a nang le dinomoro ka hare 2, 3 le 4 Hatella hape ho rarolla mathata a nang le dinomoro 1 ho isa ho 4	Rarolla ka molomo mathata a kenyeletsang dinomoro 1–8 o sebedisa dintho, dipale, ditshwantsho Tsebisa mareo (kopanya ho/kopanya, suthisa/tlosa) Sebedisa dibadi mme o rarolle ka molomo mathata a nang le dinomoro ka hare 5, 6 le 7 Hatella hape ho rarolla mathata a nang le dinomoro 1 ho isa ho 7	Rarolla ka molomo mathata a kenyeletsang dinomoro 0–10 o sebedisa dintho, dipale le ditshwantsho Sebedisa mareo (kopanya le tlosa) Sebedisa dibadi mme o rarolle ka molomo mathata a nang le dinomoro ka hare 8, 9 le 10 Hatella hape ho rarolla mathata a nang le dinomoro 1 ho isa ho 10
1.8	Ho kopanya ho phetaphetwang ho lebisang ho katiso	Ha ho dikahare tsa SLTK bakeng sa Kereiti ya 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)			

	SEHLOOHO	KOTARA YA 1	KOTARA YA 2	KOTARA YA 3	KOTARA YA 4
1.9	Ho bea ka dihlopha le ho arola ho lebisang ho karolo (ho arola ka ho lekana le ho bea ka dihlopha ka dinomoro tse felletseng ho fihlela ho 10 ka dikarabo tse nang le tshallo)	Tsebisa mareo a ho arola ka ho lekana: - nakong ya diketsahalo tsa letsatsi le letsatsi - dipale le ditshwantsho - ho abelana ha batho ba babedi	Ho arola ka ho lekana: - nakong ya diketsahalo tsa letsatsi le letsatsi - dipale le ditshwantsho - ho abelana ha batho ba babedi	Ho arola ka ho lekana: - ho bea ka dihlopha - halofo - sebedisa dintho tse tshwarehang	Ho arola ka ho lekana: - ho bea ka dihlopha - halofo le habedi - sebedisa dintho tse tshwarehang
1.10	Ho arolelana ho lebisang ho dikarolwana	Ha ho dikahare tsa SLTK bakeng sa Kereiti ya R (tsepama ho tharollo ya mathata a nang le ditshallo tse ka arolelanwang, 1.9)			
1.11	Tjhelete		Ntshetsa pele temoho ya dikhoine tsa Afrika Borwa: 10c, 20c, 50c, R1, R2, R5 Hlwaya mmala le diphoofolo Hlwaya ho tshwana le ho fapana Hlophisa tjhelete ya papadi ho ya ka mmala le boholo Bea tjhelete ya ho bapala hukung ya ntlo	Ntshetsa pele temoho ya tjhelete ya pampiri ya Afrika Borwa: R10, R20, R50, R100, R200 Hlwaya ho tshwana le ho fapana pakeng tsa tjhelete ya pampiri Hlophisa tjhelete ya papadi ho ya ka mmala le boholo Bea tjhelete ya ho bapala hukung ya ntlo	Bea tjhelete ya ho bapala hukung ya ntlo
HO SEBETSA DIPALO MAEMONG A LOKOLOHILENG: DITSHEBETSO					
1.12	Mawa	Ha ho dikahare tsa SLTK bakeng sa Kereiti ya R (tsepama ho ho bala tsohle le ho bala ho tswela pele, 1.1 le 1.6)			
1.13	Ho kopanya le ho tlosa: o rarolla mathata a builweng ka molomo a ho kopanya le ho tlosa		Letoto la dinomoro: 1–5 O rarolla ka molomo mathata a ho kopanya le ho tlosa ka ditharollo tse fihlang ho 5 Letoto la dinomoro: 1–4	Letoto la dinomoro: 1–8 O rarolla ka molomo mathata a ho kopanya le ho tlosa ka ditharollo tse fihlang ho 8 Letoto la dinomoro: 1–7	Letoto la dinomoro: 1–10 O rarolla ka molomo mathata a ho kopanya le ho tlosa ka ditharollo tse fihlang ho 10 Letoto la dinomoro: 1–10
1.14	Kopanyo e phetaphetilweng e lebisang ho katiso	Ha ho dikahare tsa SLTK bakeng sa Kereiti ya R			
1.15	Karolo	Ha ho dikahare tsa SLTK bakeng sa Kereiti ya R (tsepama ho ho arola ka ho lekana, 1.9)			
1.16	Mmetse wa hlooho	Qala ketsahalo ka nngwe ya tlelase kaofela le e tataiswang ke titjhere ka mmetse wa hlooho mme le etse mmetse wa hlooho moo menyetla ya ho ithuta ka tshohanyetso e hlahang Ho bala dintho tsa letsatsi le letsatsi Ho bala o eya pele le morao Ho bala ho ya ka maemo Ho akanya Ho rarolla mathata Dipapadi tsa kgopolo			
1.17	Dikarolwana	Ha ho dikahare tsa SLTK bakeng sa Kereiti ya R (tsepama ho ho arola ka ho lekana, 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. DIPATERONE, DITSHEBETSO le ALJEBRA				
SEHLOOHO	KOTARA YA 1	KOTARA YA 2	KOTARA YA 3	KOTARA YA 4
2.1 DIPATERONE TSA JEOMETRI				
Hlwaya dipaterone	Hlwaya dipaterone tikolohong e tlwaelehileng ya kamehla, mohl. diaparo, dintho le tikoloho Lemoha 'phetapheto' e dipateroneng			
Kopolla le ho atolosa dipaterone tse bobebe tse iphetaphetang o sebedisa dintho tse tshwarehang le metako	Kopolla le ho qetella dipaterone Kopolla dipaterone o sebedisa medumo ya mmele Kopolla, qetella le ho iketsetsa dipaterone Hlahisa puo: Ho latela eng? Ke eng e tlileng pele? Di tshwana jwang? E fapana jwang?	Kopolla le ho atolosa dipaterone ka ditshwantsho Kopolla paterone eo o e filweng o sebedisa dikhoine Hlahisa phetapheto e dipateroneng Kopolla paterone e fanweng o sebedisa dintho tse tshwarehang tsa 3-D le dibopeho tsa 2-D, dikhoine, difaha, jj.	Kopolla le ho atolosa paterone ya hao ka ditshwantsho Kopolla dipaterone tse theosang le tse rapameng o sebedisa dintho tse tshwarehang Atolosa dipaterone tse bonolo tse iphetaphetang	Kopolla le ho atolosa dipaterone tsa hao ka ditshwantsho Kopolla paterone ya lerata (modumo/o utlwahalang) Sebedisa dintho tse tshwarehang mme o rale dipaterone
Iketsetse dipaterone tse iphetaphetang	Iketsetse paterone ya hao ka ho sebedisa dintho tse tshwarehang, metako, dipaterone tsa jeometri Hlahisa paterone ya hao (molawana wa phetapheto): - mmala o le mong, dibopeho tse pedi - sebopeho se le seng, mebala e mmedi	Iketsetse paterone ya hao ka ditshwantsho Hlahisa paterone ya hao (molawana wa phetapheto): - mebala e mmedi, dibopeho tse pedi - dibopeho tse pedi, mebala e mmedi	Iketsetse paterone ya hao ka ditshwantsho Hlahisa paterone ya hao (molawana wa phetapheto): - mebala e meraro/ mene, sebopeho se fapaneng, jj.	Iketsetse paterone ya hao Hlahisa paterone ya hao (molawana wa phetapheto): - mebala e meraro/ mene, sebopeho se fapaneng, jj.
2.1	Dipaterone tsa dinomoro	Ha ho dikahare tsa SLTK bakeng sa Kereiti ya R (tsepama ho ho bala dintho: ho hlophisa dinomoro ka bonngwe le bopedi, 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. SEBAKA le SEBOPEHO (JEOMETRI)					
	SEHLOOHO	KOTARA YA 1	KOTARA YA 2	KOTARA YA 3	KOTARA YA 4
3.1	Boemo, tlwaetso le ditjhebo Hlalosa ntho e le nngwe ya 3-D kamanong le e nngwe (mohl. ka pele le ka morao)	Dikamano sebakeng Boemo ba ngwana kamanong le tikoloho eo a leng ho yona Boemo ba dintho tse pedi kapa ho feta kamanong le moithuti: - ka pela le kamora - hodima, ka hodimo, ka tlasa, ka tlase - ka hare le ka ntle, ka hare le ka ntle - hodimo le tlase - pela le pakeng tsa	Dikamano sebakeng Boemo ba ngwana kamanong le tikoloho eo a leng ho yona Boemo ba dintho tse pedi kapa ho feta kamanong le moithuti: - hodima le ka tlase ho - ka hodimo ho le ka tlase - ka pele le kamorao	Dikamano sebakeng Boemo ba dintho tse pedi kapa ho feta kamanong le dintho tse ding: - ka pela le kamora - hodima, ka hodimo, ka tlasa, tlasetlase le ka tlase - pela - bohareng - le letshehadi le le letona - mosebetsi wa boto ya diphekse Hlalosa dintho ho tswa ditjhebong tse fapaneng, mohl. ntlo ya mantlwane ho tloha kapele, kamorao le ka lehlakoreng, ho itshetlehlwe ka hore o eme hokae	Dikamano sebakeng Boemo ba dintho tse pedi kapa ho feta kamanong le tsona le baithuti le kamanong le tse ding: - ka pela le kamora - ka hodima, ka tlasa, ka hodimo, ka tlase - ka hodimo le tlasetlase - pela, pakeng tsa le bohareng - le letshehadi le le letona Boemo ba dintho tse pedi kapa ho feta kamanong le tsona
	Latela ditshupiso (o le mong le/ kapa jwaloka setho sa sehlotshwana kapa sehlopha) ho tsamaya/ho ipea sebakeng se itseng (ho etsa ditshupiso)	Ho etsa ditshupiso – pele le morao Hodimo le tlase Dipapadi tse kang ho tsamaisa terene seporong Tselana ya ditshita – ho latela tshupiso Thuto ya tsa boithapollo ba mmele le mmino	Ho etsa ditshupiso – pele le morao Tselana ya ditshita – ho latela tshupiso Diketesahalo tsa ka ntle Tse sa rerwang: le letshehadi le le letona	Pele le morao Tjhate ya marungwana Le letshehadi le le letona	Pele le morao Hodimo le tlase Bohodimo le botlase Le letshehadi le le letona Modumo o hlaha hokae?
3.2	Dintho tsa 3-D				
	Lemoha, hlwaya le ho bolela dintho tsa mahlakore a mararo ka phaposing ya borutelo	Tsebisa le ho sibolla Bapisa le ho hlophisa: - dibolo - mabokoso a nang le difahleho (mahlakore) tse kgutlonnetsepa le tse kgutlonne			

	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

SEHLOOHO	KOTARA YA 1	KOTARA YA 2	KOTARA YA 3	KOTARA YA 4
Hlalosa, hlophisa le ho bapisa dintho tsa 3-D	Tsebisa Tjhate ya ho Hlwekisa (ho hlophisa dibapadiswa) Hlophisa dintho tsa 3-D ho ya ka (lekgetha le le leng): - boholo (kgolo/nyane) - mmala - sebopeho Hlwaya le ho sibolla dintho tsa 3-D: sebopeho se sephara, tjitja, kgutlonnetsepa kapa kgutlonne Dintho tse thetehang Dintho tse thellang	Hlophisa dintho tsa 3-D ho ya ka ho tshwana le ho fapana: - boholo - mmala - sebopeho	Hlophisa dintho tsa 3-D ho ya ka ho tshwana le ho fapana (makgetha a mabedi): - boholo - mmala - sebopeho Sibolla dintho tsa 3-D: sebopeho se sephara, tjitja, kgutlonnetsepa kapa kgutlonne	Hlophisa dintho tsa 3-D ho ya ka (makgetha a mabedi kapa ho feta): - boholo - mmala - sebopeho Sibolla dintho tsa 3-D: sebopeho se sephara, tjitja, kgutlonnetsepa kapa kgutlonne
Aha dintho tsa 3-D	E tswela pele Fana ka diboloko tsa ho aha le disebediswa tsa kaho nakong ya papadi ya bolokolohi ya ka hare letsatsi le letsatsi Sibolla ka diboloko tsa ho aha	E tswela pele Fana ka diboloko tsa ho aha le disebediswa tsa kaho nakong ya papadi ya bolokolohi ya ka hare letsatsi le letsatsi Sibolla ka diboloko tsa ho aha Sebedisa diboloko tsa ho aha le dintho tse resaekelwang bakeng sa ho ikahela meaho ya hao	E tswela pele Fana ka diboloko tsa ho aha le disebediswa tsa kaho nakong ya papadi ya bolokolohi ya ka hare letsatsi le letsatsi Ikahele moaho wa hao ka ho kopolla ho tswa ho mohlala wa moaho o fanweng Kopolla moaho ona oo ho moralo kapa karete ya ditshwantsho	E tswela pele Fana ka diboloko tsa ho aha le disebediswa tsa kaho nakong ya papadi ya bolokolohi ya ka hare letsatsi le letsatsi E tswela pele nakong ya papadi ya bolokolohi ya ka hare
3.3 Dibopeho tsa 2-D				
Lemoha, hlwaya le ho bolela dibopeho tsa mahlakore a mabedi ka phaposeng ya borutelo	Tsebisa tjhate ya ho Hlwekisa/Mothusi Lemoha letshwao le lebitso la moithuti Tsebisa dibopeho tsa 2-D: sedikadikwe, kgutlonnetsepa, kgutlotharo, kgutlonne Diphazele (palo e tlase e be dikotwana tse 6)	Lemoha letshwao le lebitso la moithuti Lemoha, hlwaya le ho bolela dibopeho tsa 2-D: sedikadikwe, kgutlonnetsepa le kgutlotharo Diphazele (palo e tlase e be dikotwana tse 12)	Lemoha le ho hlwaya lebitso la moithuti Hatella hape: sedikadikwe, kgutlonnetsepa, kgutlotharo Bapisa dikgutlonne le dikgutlonnetsepa Diphazele (palo e tlase e be dikotwana tse 18)	Hlwaya lebitso la moithuti Hatella hape: kgutlonne Lemoha, hlwaya le ho bolela dibopeho tsa 2-D: sedikadikwe, kgutlonnetsepa, kgutlotharo, kgutlonne Diphazele (palo e tlase e be dikotwana tse 24)
Hlalosa, hlophisa le ho bapisa dibopeho tsa 2-D	Hlophisa dibopeho tsa 2-D ho ya ka: - mmala - sebopeho Sedikadikwe: mola o kgopameng Kgutlonnetsepa: mahlakore a 4, mela e otlohileng, dihuku Kgutlotharo: mahlakore a 3, mela e otlohileng, dihuku	Hlophisa dibopeho tsa 2-D ho ya ka ho tshwana le ho fapana: - sebopeho Hatella hape kgutlotharo Hatella hape sedikadikwe le kgutlonnetsepa	Hlophisa dibopeho tsa 2-D ho ya ka: - mmala - sebopeho (mola o kgopameng, mela e meraro kapa e mene) Hatella hape sedikadikwe, kgutlonnetsepa le kgutlotharo	Hlophisa dibopeho tsa 2-D ho ya ka: - boholo - mmala - sebopeho

	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)

	SEHLOOHO	KOTARA YA 1	KOTARA YA 2	KOTARA YA 3	KOTARA YA 4
	Kgopolo ya Setshwantsho se thadilweng Diboepo tsa Jeometri	Tsebisa kgopolo ya setshwantsho se radilweng (hlwaya dintho le dibopeho – 'Ha ke sheba kwana ke bona') Tsebisa sedikwadikwe, kgutlonnetsepa le kgutlotharo	Hatella hape kgopolo ya setshwantsho se radilweng ka diketsahalo tsa ho hlophisa, ho nyalanya le ho bea ka dihlopha le ditlwaelo tsa ho hlwekisa Hatella hape kgutlotharo Ho boloka sebopoho (poloko ya popeho ya kgutlotharo)	Hatella hape kgopolo ya setshwantsho se radilweng ka diketsahalo tsa ho hlophisa, ho nyalanya le ho bea ka dihlopha le ditlwaelo tsa ho hlwekisa Hatella hape kgutlonnetsepa Ho boloka sebopoho (poloko ya popeho ya dibopeho tse ithutilweng ho fihla jwale)	Hatella hape kgopolo ya setshwantsho se radilweng ka diketsahalo tsa ho hlophisa, ho nyalanya le ho bea ka dihlopha le ditlwaelo tsa ho hlwekisa Hatella hape sedikwadikwe, kgutlotharo, kgutlonnetsepa le kgutlonne Ho boloka sebopoho (poloko ya popeho ya dibopeho tse ithutilweng ho fihla jwale)
3.4	Molahare (Lemoha molahare ho wena, le tikoloho ya hao)	Hlwaya ditho tsa mmele Ho elellwa mmele ho ya ka: - mmele wa motho o na le mahlakore a mabedi - lehlakore le le leng, lehlakore le leng, ho lebisang ho le letshehadi le le letona - ka hodimo/ka tlase - ka morao/ka pele - ho tlola mola o hare (diketsahalo tsa mmele) Diketsahalo tse lokelang ho etswa nakong ya ntshetsopele ya ditho tsa mmele – ho sebediswa diraeme le dipina le ka nako ya Bonono ba Boiqapelo	Ho tshela mola o hare – ho etsa diketso Ho sebedisa ho tshela mola o hare nakong ya Bokgoni ba Bophelo (ntshetsopele ya ditho tsa mmele) – o sebedisa diraeme le dipina, nakong ya Bonono ba Boiqapelo	Ho tshela mola o hare (diketsahalo tsa tlapangollong) Ho sebedisa ho tshela mola o hare nakong ya Bokgoni ba Bophelo (ntshetsopele ya ditho tsa mmele)	Ho ba le temoho ya hore ho na le molahare dinthong Ho sebedisa ho tshela mola o hare nakong ya Bokgoni ba Bophelo (ntshetsopele ya ditho tsa mmele)

4. MEASUREMENT

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

4. MOMETHO					
	SEHLOOHO	KOTARA YA 1	KOTARA YA 2	KOTARA YA 3	KOTARA YA 4
4.1	Nako	<p>Tsebisa mareo ka bobedi motshehare/ bosiu, kganya/lefifi, hoseng/mantsiboya/ bosiu (bosiung bona)</p> <p>Tsebisa Lenaneo la letsatsi le letsatsi le nang le ditshwantsho tse beilweng ho tloha ho le letshehadi ho ya ho le letona le lerungwana ho bontsha diketsahalo ha letsatsi le ntse le tswela pele</p> <p>Tsebisa tjhate ya maemo a lehodimo (letsatsi le letsatsi) e nang le lebitso la letsatsi, mohla le kgwedi mmoho le pina le raeme, difoleshe karete mme o bee dileibole le ditshwantsho khalendareng tse emetseng beke eo</p> <p>Matsatsi a beke (letsatsi le letsatsi) tatelano e ithutwang ka pina kapa raeme Bontsha matsatsi a tlhaho, maetonyana, matsatsi a ikgethileng, matsatsi a phomolo hara beke Bea dikgwedi tsa selemo ka tatelano ka pina</p> <p>Ntshetsa pele temoho ya lereo la nako</p> <p>Tsebisa tjhate ya dihla lehlabula, hwetla, mariha, selemo</p> <p>Tsebisa tjhate ya matsatsi a tswalo le dilemo tsa hao, letsatsi la tswalo (letsatsi le kgwedi) Ntshetsa pele temoho ya taelo ya ho bala</p>	<p>Lenaneo la letsatsi le letsatsi (le tswellang) Hatella hape tatellano ya diketsahalo tse iphetang letsatsing le le leng</p> <p>Tjhate ya maemo a lehodimo (letsatsi le letsatsi) e nang le pina le raeme ya letsatsi, mohla le kgwedi, difoleshe karete le dileibole tsa ho kgabisa, matshwao le ditshwantsho khalendareng ya beke le beke</p> <p>Matsatsi a beke (a tswela pele) pheta pina kapa raeme letsatsi le letsatsi Ntshetsa pele temoho ya seo moithuti a se etsang ho tloha nakong eo a tsohang ka yona ho fihlela a eya sekolong</p> <p>Ntshetsa pele temoho ya se etsahalang pakeng tsa nako ya dijo tsa mantsiboya le nako ya ho robala</p> <p>Tjhate ya matsatsi a tswalo e a tswella nako efe kapa efe ha moithuti a ena le letsatsi la tswalo</p> <p>Tjhate ya dihla lehlabula, hwetla, mariha, selemo</p>	<p>Lenaneo la letsatsi le letsatsi (le tswellang) Hatella hape tatellano ya diketsahalo tse iphetang letsatsing le le leng</p> <p>Tjhate ya maemo a lehodimo (letsatsi le letsatsi) e nang le letsatsi, mohla le pina le raeme ya kgwedi, difoleshe karete le dileibole tsa ho bontsha, matshwao le ditshwantsho khalendareng ya beke le beke</p> <p>Matsatsi a beke (a tswela pele)</p> <p>Tjhate ya dihla (e tswela pela)</p> <p>Tjhate ya matsatsi a tswalo e a tswella nako efe kapa efe ha moithuti a ena le letsatsi la tswalo</p>	<p>Lenaneo la letsatsi le letsatsi (le tswellang) Hatella hape tatellano ya diketsahalo tse iphetang letsatsing le le leng</p> <p>Tjhate ya maemo a lehodimo (letsatsi le letsatsi) e nang le letsatsi, mohla le pina le raeme ya kgwedi, difoleshe karete le dileibole tsa ho bontsha, matshwao le ditshwantsho khalendareng ya beke le beke</p> <p>Matsatsi a beke (a tswela pele)</p> <p>Tjhate ya dihla (e tswela pela)</p> <p>Tjhate ya matsatsi a tswalo e a tswella nako efe kapa efe ha moithuti a ena le letsatsi la tswalo</p>

	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			

	SEHLOOHO	KOTARA YA 1	KOTARA YA 2	KOTARA YA 3	KOTARA YA 4
4.2	Botelele Bapisa le ho beha ka tatelano dintho tse tshwarehang o sebedisa tlotlontswa e loketseng bakeng sa ho hlalosa botelele	Nakong ya ditlwaelo tsa letsatsi le letsatsi tsebisa lereo la botelele: telele le kgutshwane, molelele, molelele ho feta, molelele ho fetisisa Tsebisa tjhate ya bolelele Baithuti ba ka bapisa bolelele ba bona ba eme pela ho hong ka tlaseng, mohl. khaboto: - metha ka matsoho (tsa pono le tsa tshohanyetso) - metha ka dikgato tsa maoto/maoto	Nakong ya ditlwaelo tsa letsatsi le letsatsi sibolla lereo la botelele: telele le kgutshwane, lelele, lelele ho feta le lelele ho fetisisa Bapisa le ho beha ka tatelano dintho tse pedi kapa ho feta ka ho di bea di bapile Sebedisa tlotlontswa e loketseng ho hlalosa botelele: telele ho fetisisa le kgutshwane ho fetisisa, telele ho feta le kgutshwane ho feta Tjhate ya ho bapisa bolelele: baithuti ba fumana hore ebe ba hodile ho tloha kotareng e fetileng	Akanya botelele ba dintho tse fapaneng Akanya le ho metha botelele ba dintho tse fapaneng o sebedisa maoto, matsoho, sekgetjhana sa kgwele, thupa Tjhate ya ho bapisa bolelele: baithuti ba fumana hore ebe ba hodile ho tloha kotareng e fetileng	Metha bolelele ba baithuti ka theipi ya ho metha Tjhate ya ho bapisa bolelele: baithuti ba fumana hore ebe ba hodile ho tloha kotareng e fetileng
4.3	Boima Sebetsa ka dintho tse tshwarehang o bapisa le ho beha ka tatelano dintho ka ho sebedisa tlotlontswa e loketseng	Ho ithuta ka tshohanyetso ka tlung le ka ntle E a tswella nakong ya papadi ya metsi le lehlabathe	Ho ithuta ka tshohanyetso ka tlung le ka ntle E a tswella nakong ya papadi ya metsi le lehlabathe	Tsebisa lereo la boima ka ho bapisa boima ba dintho tse fapaneng: - bobebe/boima - bobebe ho feta/boima ho feta - bobebe ho fetisisa/boima ho fetisisa	Hatella hape puo ya boima nakong ya diketsahalo tsa ka tlung le tsa ka ntle
4.4	Mothamo/Volumo O sebetsa ka dintho tse tshwarehang a bapisa le ho hlalamanya dintho a sebedisa tlotlontswa e lokelang	Ho ithuta ka tshohanyetso ka tlung le ka ntle: lephaka/tletse, e ngata ho, e ka tlase ho E a tswella nakong ya papadi ya metsi le lehlabathe	Ho ithuta ka tshohanyetso diketsahalo tsa ka tlung le tsa ka ntle Papadi ya metsi/lehlabathe Sebedisa ditshelo ho bapisa bongata o sebedisa ditshelo tse tlwaelehileng	Tsebisa lereo la ho metha la mothamo ka ho bapisa hore ditshelo tse fapaneng di tshela hakae: - lephaka/tletse - e feta/e ka tlase ho	E a tswella nakong ya papadi ya metsi le lehlabathe Hatella hape puo ya mothamo/volumo nakong ya diketsahalo tsa ka tlung le tsa ka ntle
4.5	Pherimitha le Sebaka	Ha ho dikahare tsa SLTK bakeng sa Kereiti ya R			

5. DATA HANDLING

	TOPIC	TERM 1	TERM 2	TERM 3	TERM 4
5.1	<p>Collect and sort objects</p> <p>Collect and sort physical objects according to one attribute, e.g. size of leaves</p>	<p>Introduce the concept of data handling:</p> <ul style="list-style-type: none"> - 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 	<p>Collect objects (twigs of different sizes/lengths)</p> <p>Sort the collected objects (twigs)</p>	<p>Pose a question: 'Are names with six letters the most popular?'</p> <p>Collect data to answer the question using the learners' name cards</p> <p>Sort the name cards according to the number of letters in each name</p>	<p>Collect data: Whose birthdays are in which month?</p> <p>Sort the data according to the relevant birthday month of each learner</p> <p>Collect data: e.g. What is your favourite playdough colour?</p> <p>Select one block representing the colour of his/her choice of playdough for the week</p> <p>Collect data: Which mode of transport do learners use to come to school?</p> <p>Sort the collected data (walk, with parent's car, taxi or bus)</p>
5.2	<p>Represent sorted collections of objects</p>	<p>Represent the graph using concrete objects</p> <p>Make a graph representing the data using blocks or shapes</p> <p>Make a pictograph</p>	<p>Draw a graph to display data (twigs)</p> <p>Draw a picture as a record of collected objects</p>	<p>Draw a graph by pasting each name card below the relevant column</p> <p>Make a pictograph</p>	<p>Draw a graph representing the learners' birthdays in each month</p> <p>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</p> <p>Draw a pictograph representing the learners who walk and come by taxi, car, bus</p>
5.3	<p>Discuss and report on sorted collections of objects</p>	<p>Read and interpret data by using playdough to make a representation of the number of boys and girls in the class</p> <p>Answer questions based on own sorting of objects</p> <p>How many big leaves did you draw? Which are the most: the big leaves or the small leaves?</p> <p>How many/more/less/same as?</p>	<p>Read and interpret graphs using questions</p> <p>Answer questions based on own picture or own sorted objects</p>	<p>Read and interpret data by counting the number cards in each column and coming to a conclusion</p>	<p>Read and interpret graphs using questions to determine which month has the most birthdays</p> <p>According to the choice of the learners, the colour of the playdough for the week will be, for example, yellow</p> <p>Read and interpret graphs (How many walk, come by taxi, bus, etc.?)</p>

5. HO SEBETSANA LE DATHA					
	SEHLOOHO	KOTARA YA 1	KOTARA YA 2	KOTARA YA 3	KOTARA YA 4
5.1	<p>Bokella le ho hlophisa dintho</p> <p>Bokella le ho hlophisa dintho tse tshwarehang ho ya ka lekgetha le le leng, mohl. boholo ba mahlaku</p>	<p>Tsebisa monahano wa ho sebetsana le datha:</p> <ul style="list-style-type: none"> - bokella le ho hlophisa datha, mohl. Ho na le bashemane/ banana ba bakae ka tlelaseng? - hlophisa datha ka ho emisa baithuti ka mela ya bashemane le banana 	<p>Bokella dintho (makala a boholo/ bolelele bo fapaneng)</p> <p>Hlophisa dintho tse bokelletseng (makala)</p>	<p>Botsa potso: 'Na mabitso a nang le ditlhaku tse tshelletseng a ratwa ho feta a mang?'</p> <p>Bokella datha ho araba dipotso o sebedisa dikarete tsa mabitso tsa bana</p> <p>Hlophisa dikarete tsa mabitso ho ya ka lenane la ditlhaku lebitsong ka leng</p>	<p>Bokella datha: Ke bomang ba nang le matsatsi a tswalo ka kgwedi efe?</p> <p>Hlophisa datha ho ya ka kgwedi e loketseng ya letsatsi la tswalo la moithuti ka mong</p> <p>Bokella datha: mohl. Ke mmala ofe wa hlama ya ho papala oo o o ratang ka ho fetisisa?</p> <p>Kgetha boloko bo le bong ho emela mmala wa kgetho ya hae ya hlama ya ho papala bakeng sa beke</p> <p>Bokella data: Baithuti ba sebedisa mkgwa ofe wa dipalangwang ho tla sekolong?</p> <p>Hlophisa datha e bokelletseng (tsamaya, ka koloi ya motswadi, tekesi kapa bese)</p>
5.2	<p>Emela dipokello tse hlophisitsweng tsa dintho</p>	<p>Emela kerafo ka ho sebedisa dintho tse tshwarehang</p> <p>Etsa kerafo e emelang datha o sebedisa diboloko kapa dibopeho</p> <p>Etsa kerafo ya ditshwantsho</p>	<p>Taka kerafo ho bontsha datha (makala)</p> <p>Taka setshwantsho ele rekoto ya dintho tse bokelletseng</p>	<p>Taka kerafo ka ho manamisa karete kang ya lebitso ka tlasa kholomo e nepahetseng</p> <p>Etsa kerafo ya ditshwantsho</p>	<p>Taka kerafo e emetseng matsatsi a tswalo a baithuti kgwedding ka nngwe</p> <p>Sebedisa dintho tsa nnete ho etsa kerafo, jwaloka diboloko ho emela mmala wa hlama ya ho papala eo o rerang ho e etsa, mohl. botala ba lehodimo, tshela, tala</p> <p>Taka kerafo ya ditshwantsho e emelang baithuti ba tlang ka maoto sekolong le ba tlang ka tekesi, koloi, bese</p>
5.3	<p>Buisanang le ho tlaleha ka dipokello tsa dintho</p>	<p>Bala le ho hlalosa datha ka ho sebedisa hlama ya ho papala ho etsa tlhaloso ya lenane la bashemane le banana ka tlelaseng</p> <p>Araba dipotso tse mabapi le tlhophiso ya hao ya dintho</p> <p>O takile mahlaku a maholo a makae? Ke afe a mangata: mahlaku a maholo kapa mahlaku a manyane?</p> <p>A makae a mangata/ a fetang/a ka tlase/ a lekanang le?</p>	<p>Bala le ho hlalosa dikerafo o sebedisa dipotso</p> <p>Araba dipotso tse theilweng setshwantshong sa hao kapa dinthong tseo o di hlophisitseng</p>	<p>Bala le ho hlalosa datha ka ho bala dikarete tsa dinomoro kholomong ka nngwe le ho fihlela qeto</p>	<p>Bala le ho hlalosa kerafo o sebedisa dipotso ho fumana hore ke kgwedi efe e nang le matsatsi a tswalo a mangata</p> <p>Ho ya ka kgetho ya baithuti, mmala wa hlama ya ho papala bakeng sa beke e tla ba, mohlala, tshela</p> <p>Bala le ho hlalosa dikerafo (Ke ba bakae ba tsamayang, ba tlang ka tekesi, ka bese, jj.?)</p>

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, Matshwao le Dikamano

Ho utlwisisa nomoro

Bana ba ba le kutlwisiso ya nomoro le ho bala dintho ha ba ntse ba etsa diketso tsa kamehla. Ba sebedisa tsena ho qala ho eellwa kamano pakeng tsa meelelo e fapaneng ya nomoro. Ba eellwa le ho ithuta hore dinomoro di ka sebediswa ka tsela e fapaneng maemong a fapaneng. Ho etsa mohlala, 'hlano' e ka sebediswa bakeng sa:

- ★ ho bolela bongata ba dintho ('hore di kae'): 'Ke na le dipompong tse hlano.'
- ★ ho bolela tatelano ya dintho: 'Ke motho wa bohlanano moleng.'
- ★ ho lekanya ho hong: 'O na le dilemo tse hlano.'
- ★ jwaloka leibole: 'Re dula nomorong ya hlano.'
- ★ palong: ' $2 + 3 = 5$ '



Dinomoro ke mehopollo kapa dikgopolo tsa bongata (ke tse kae). Baithuti ba qala ho utlwisisa hore 'hlano' e bolela hore ho na le dintho tse hlano, le hore hlano e ka nna ya eba boemo ba bohlanano moleng, kapa 'hlano' e ka re bolella hore ho na le dintho tse kae moo. Dinomoro di bolela tlhahisoleseding e qollehileng, e nang le dintlha mabapi le dipokello le bongata ba dintho, diketsahalo kapa diketso.



Setshwantsho sa 4.2 Meelelo e fapaneng ya 'hlano'

Dinomoro ke mehopollo e sa tshwarehang. Ha se dintho ka botsona. Di hlalosa ho hong mabapi le dintho tse ding. Ho etsa mohlala, jwalo feela ka lentsewe lena 'tala' le ka sebediswa ho hlalosa mmala wa apole, nomoro ena 'tshela' e ka sebediswa ho hlalosa lenane la diapole tse ka hara pokello. Ha motho a o kopa ho mo fa sekotlolo o ka mo neheletsa ntho e tshwarehang, empa ha motho a ka o kopa ho mo fa 'hlano' o keke wa e nka wa mo

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.

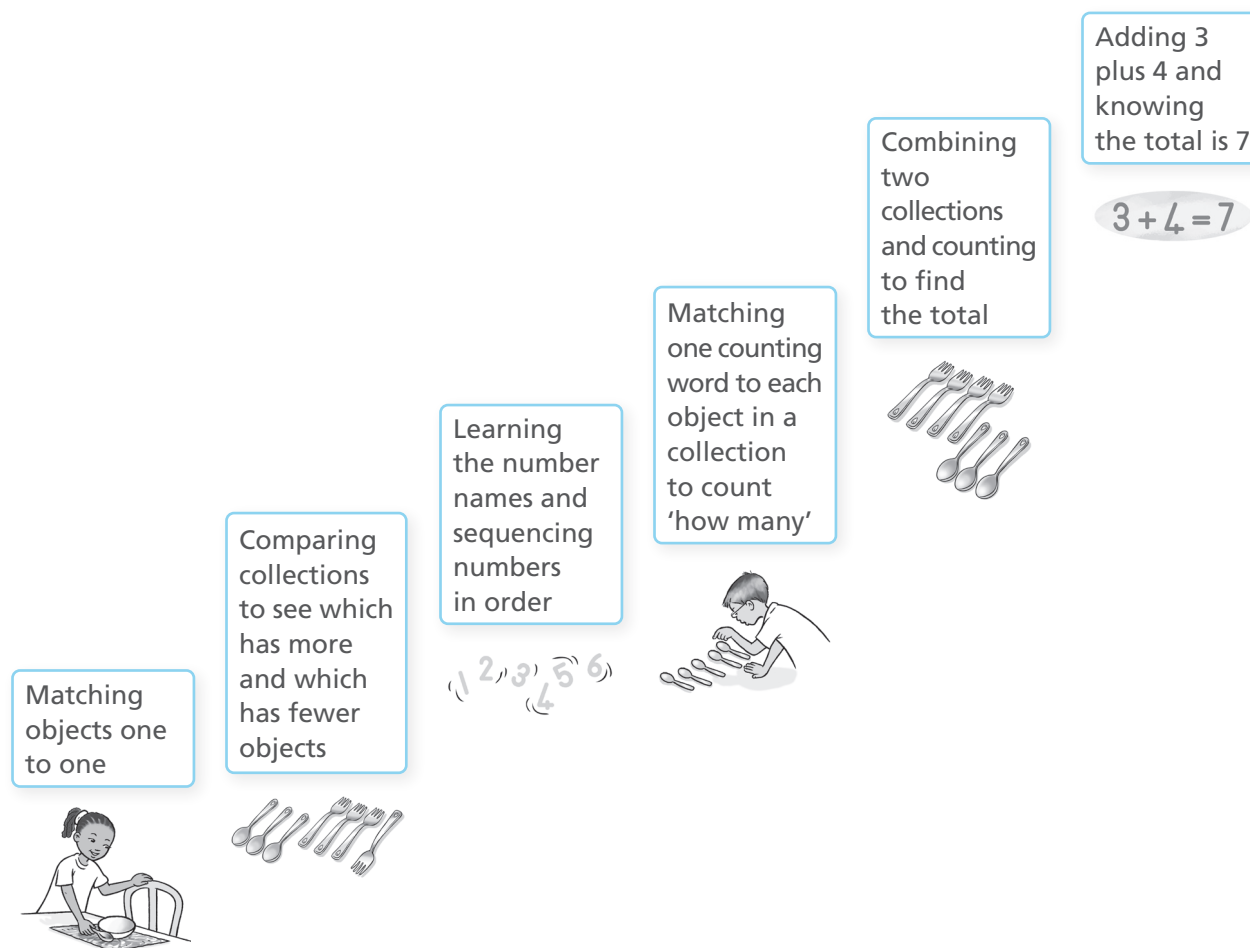


Figure 43 Progression

fa yona. Mohlomong o ka nahana ho mo fa nomoro '5' e ngotswe kareting kapa o ka mo fa dithupa tse hlano, kapa wa mmontsha menwana e mehlano. Ha ho kgonehe ho bontsha nomoro ka boyona hobane ke mohopolo o ka dihloohong tsa rona, kahoo re fumana ditsela tsa ho bontsha kapa ho emela nomoro eo, jwaloka ho sebedisa pokello ya dintho, setshwantsho kapa letshwao le kang nomoro kapa lentswe.



Diketsahalong ...



Thusa baithuti ho aha tsebo e ntjha ya mmetse le dikgopolo tse theilweng ho dintho tseo ba kopanang le tsona bophelong ba bona ba kamehla:

- Sebedisa tsebo ya baithuti ya pele ha o ba ruta dikgopolo tse ntjha tsa mmetse.
- Sebedisa maemo a tlwaelehileng ho bontsha mehlala ya dikgopolo tse ntjha tsa mmetse.
- Etsa mahokela pakeng tsa diketsahalo tsa kamehla le dikgopolo.
- Rera diketsahalo tse ahellang le ho tebisa kutlwisiso ya baithuti ya dikgopolo tsa mmetse.

Setshwantsho sa 43 se bontsha kgatelopele e bonolo ho tloha diketsahalong tsa kamehla ho isa dikgopolong tse thatanyana haholo tsa nomoro Kereiting ya R. E qala ka diketsahalo tsa kamehla tse tsamaelanang le dinomoro le dikgopolo tsa pele tsa dinomoro mme e tswela pele ho fetela dikgopolong tse thatanyana tsa nomoro.

Ho nyalanya dintho e nngwe ho e nngwe



Ho bapisa dipokello ho bona hore ke efe e nang le dintho tse ngata mme ke efe e nang le tse mmalwa



Ho ithuta mabitso a dinomoro le ho hlahlamanya dinomoro ka ho latelana

(1, 2, 3, 4, 5, 6)



Ho nyalanya lentswe le le leng la ho bala le ntho ka nngwe pokellong bakeng sa ho bala hore 'ke tse kae'

Ho kopanya dipokello tse pedi le ho bala ho fumana palo yohle



Ho kopanya 3 le 4 le ho tseba palo yohle hore ke 7

$$3 + 4 = 7$$

Setshwantsho sa 43 Kgatelopele

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.

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 4.4. 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.

GLOSSARY

represent

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

Ho emela nomoro

Nakong ya Kereiti ya R, baithuti ba sebedisa matshwao ho **emela** mantswe, ditshwantsho le mehopolo. Bana ba qala pele ka ho ithuta ho emela mehopolo kapa diketso ka papadi ya monahano, ho etsa mohlala, diphaka tsa moithuti e ba mapheo a sefofane ha a ntse a potoloha ka phaposing, kapa moithuti a ka sebedisa sekwahelo sa polasetiki jwaloka lebidi la ho kganna bakeng sa ho kganna koloji.

Baithuti ba qala ho emela dinomoro ka ho sebedisa menwana ya bona mme ebe butlebutle ba qala ho sebedisa mekgwa e meng, jwaloka dintho, metako, ditshwantsho kapa matshwao. Baithuti ba hatela pele:

- ★ ho tloha ho sebediseng dintho tsa nnete ho isa ho emeleng dinomoro, mohl. disirilamunu, dipompong, dipentshele, mahlaku
- ★ ho isa ho sebediseng ditshwantsho kapa metako ho emela dintho, mohl. motako wa sirilamunu, motho, koloji
- ★ ho sebediseng dibadi ho emela dintho kapa ditshwantsho, mohl. didiski tsa polastiki ho bontsha palo ya disirilamunu
- ★ ho sebediseng matshwao ho emela dintho tse tshwarehang le ditshwantsho, mohl. didikadikwe, matheba, matshwao a ho lekanya
- ★ ho sebediseng matshwao a ngotsweng a dinomoro le mantswe a dinomoro, mohl. '2' kapa 'pedi'.

Ditsela tse ding tse fapaneng ke tse na tsa ho emela 'hlano'.



Setshwantsho sa 44 Ditsela tse fapaneng tsa ho emela 'hlano'

Mefuta e fapaneng ya dinomoro

Ho na le mefuta e fapaneng ya nomoro sistiming ya dinomoro.

Kereiting ya R re shebana feela le kutlwisiso le tsebediso ya dinomoro tse felletseng (dinomoro tsa ho bala dintho).

Dikereiting tse ka hodimo, baithuti ba tla ithuta hore:

- ★ **diintheja** di kenyeletsa dinomoro tse felletseng le dinomoro tse nekethife (tse ka tlase ho 0)
- ★ **dinomoro tsohle** di kenyeletsa dinomoro tse felletseng, dinomoro tse nekethife, didesimale le dikarolwana.

TLELOSARI

emela

ho sebedisa dintho, matshwao kapa diketso ho emela mehopolo kapa kgopolo e itseng

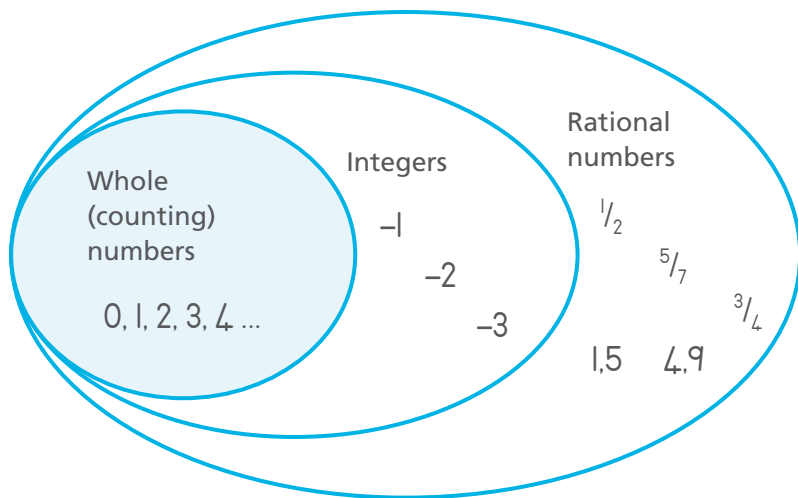


Figure 45 In Grade R the focus is on whole numbers.

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.

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.

GLOSSARY

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

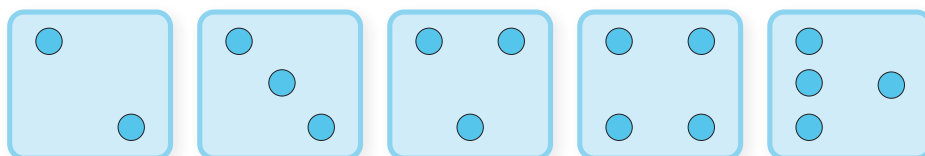
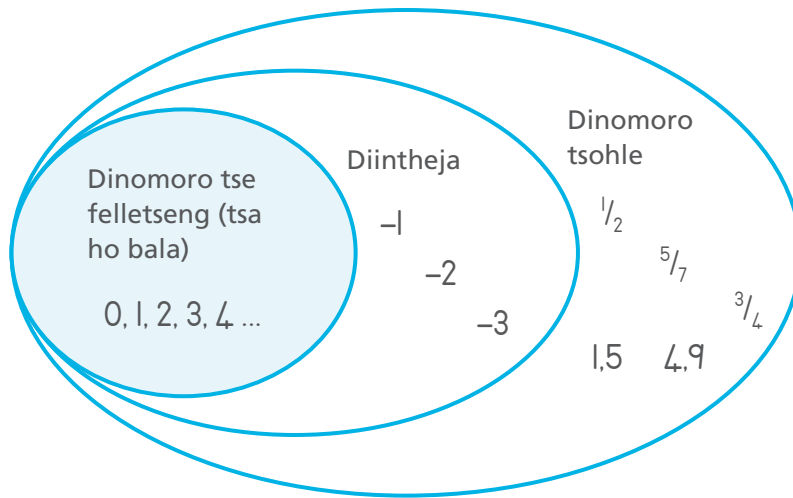


Figure 46 Dot arrangements for two, three and four

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.



Setshwantsho sa 45 Kereiting ya R tsepamiso e ho dinomoro tse felletseng.

Ho akanya

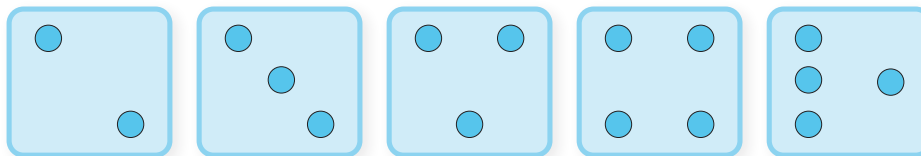
Ho akanya ho kenyeletsa ho elellwa hanghang, ntle le ho bala, lenane la dintho tse pokellong e nyane. Ho akanya ke bokgoni ba pele bo bang teng pele ho ithutwa mabitso le matshwao a dinomoro kapa ho ithuta ho bala dintho. Ho akanya ho aha motheo o matla bakeng sa ho bala dipokello tsa dintho le bakeng sa ho etsa dipalo bonyaneng.

Ho akanya ka ho bona

Ho akanya ka ho bona ke bokgoni ba ho elellwa hanghang lenane la dintho ka hara pokello e nyane. Bana ba banyenyane ba kgona ho bona le ho elellwa phapang pakeng tsa lenane la dintho pokellong, ntle le ho di bala, mme ba bolele hore ke efe e nang le tse ngata kapa tse mmalwa ntle le ho tseba mabitso kapa matshwao a dinomoro. Ka nako tse ding, ba ka sebedisa menwana ya bona ho nyalanya le ho bontsha lenane le lekanang la dintho. Butlebutle ba ithuta ho nyalanya mabitso a dinomoro ho pokello mme ba tla kgona ho re, ntle le ho bala, ho na le ntho e le nngwe, tse pedi, tse tharo, tse hlano pokellong. Mokgwa ona wa ho akanya o kgoneha feela ka lenane le tlase la dintho mme bana ba bangata le batho ba baholo ba ka etsa sena ka ho nepahala ho fihlela ho hlano.

TLELOSARI

ho akanya
 bokgoni ba kutlwisiso ba ho elellwa hanghang paloyohle ya dintho tse pokellong ntle le ho di bala



Setshwantsho sa 46 Tlhophiso ya matheba bakeng sa pedi, tharo le nne

Ho akanya bongata ba dintho

Kereiting ya R bokgoni ba baithuti ba ho elellwa hore ho na le dintho 'tse kae' pokellong bo a eketseha. Bo ka fetela le ho manane a maholo ho hlano ka ho sebedisa ditshwantsho tsa dinomoro tse kang tlhophiso ya matheba letaeseng, ho didomino le ho diforeimi tsa leshome.

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

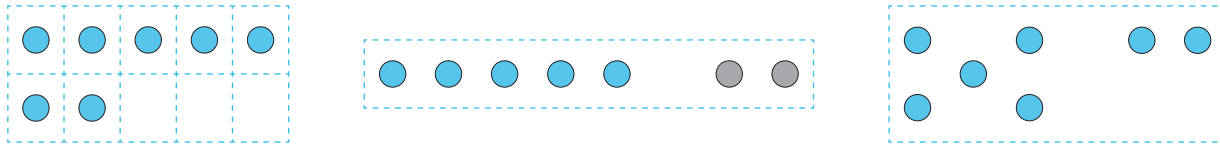








Figure 47 Dot arrangements for seven

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.

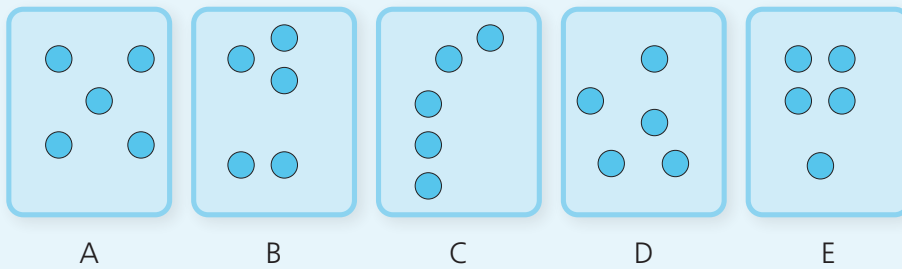


Figure 48 Dot cards

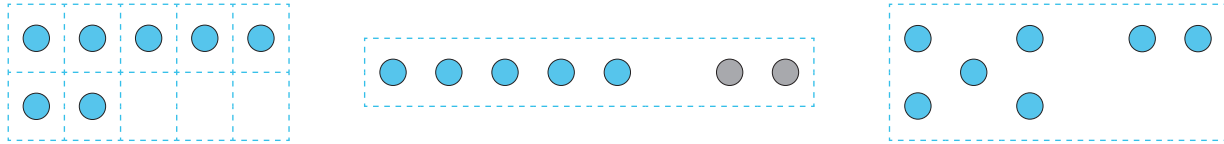
Activities such as dominoes and dice games provide fun opportunities to practise subitising skills.

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'.

Mehlaleng e ka tlase mona, ka ho sebedisa kakanyo ya manane baithuti ba ka elellwa hanghang hore e nngwe le e nngwe ya dikarete tse na e bontsha dintho tse supileng.



Setshwantsho sa 47 Ditlhophiso tsa matheba bakeng sa supa

Mokgwa ona o atolositsweng wa ho akanya o bitswa ho akanya ntle le ho bala. O theilwe ho karolo ya tsebo yohle mme o kgontsha baithuti ho elellwa ka potlako dinomoro tse kgolo ho hlano.



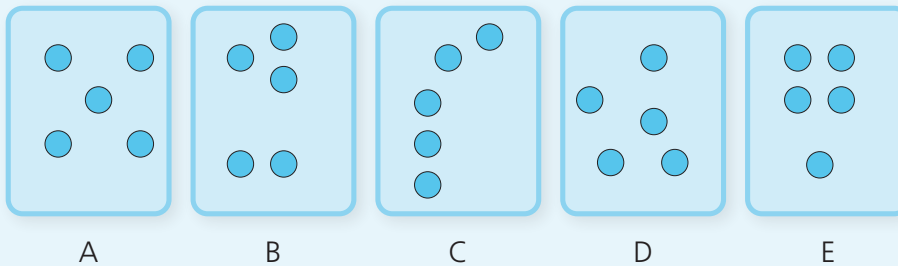
Diketsahalong ...



Baithuti ba natefelwa ke ho bapala dipapadi tse kenyeletsang ho bontsha ka potlako palo e nyane ya dintho pele o di pata, mme ebe ba botswa hore ho ne ho ena le dintho tse kae. Dipapadi tsa ho nyalanya le ho bala di tla kgobokanya ho akanya, ho etsa mohlala, ho elellwa lenane la dintho ntle le ho di bala. Sena se tla thusa baithuti ho hopola dikopanyo tsa dinomoro ho fihlela ho leshome le ho etsa dipalo esale qalong (ho kopanya le ho tlosa).

Dikarete tsa matheba di ka sebediswa ho:

- emela ditlhophiso tse fapaneng tsa dinomoro ho tloha ho nngwe ho isa ho hlano
- tshheheta ntshetsopele ya ho elellwa dinomoro tse nyane
- nyalanya mabitso a dinomoro le dipokello tse nyane
- ho nyalanya dibadi le matheba.



Setshwantsho sa 48 Dikarete tsa matheba

Diketsahalo tse kang dipapadi tsa didomino le mataese di fana ka menyetla ya boithabiso bakeng sa ho kwetlisa bokgoni ba ho akanya.

Ho bala dintho

Ho bala dintho ke bokgoni bo rarahaneng bo hlokang ho ikwetlisa hangata. Baithuti ba eba le bona ha ba ntse ba ikwetlisa ho bala dintho tsa nnete. Hangata ba qala ka ho etsisa baithuti ba baholwanyana le batho ba baholo ha ba bala dintho.

Ho na le diketsahalo tse pedi tse kenyeletsang ho bala dintho. Ya pele ke ho bala ka molomo kapa ka morethetho ho kenyeletsang ho ithuta ka hlooho mabitso le tatelano ya dinomoro tsa ho bala, hangata ka hara raeme kapa pina. Ya bobedi ke ho bala dintho ka bonngwe bakeng sa ho fumana hore 'di 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'.

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.

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'

Ho bala ka molomo

Kereiting ya R, baithuti ba ithuta tatelano e nepahetseng ya mabitso a dinomoro mme ba pheta tatelano eo letsatsi le letsatsi, ba balla hodimo. Mofuta ona wa **ho bala ka molomo** hape o bitswa **ho bala ka modumo** kapa **ka morethetho**. Sepheo sa ho balla hodimo ke ho thusa baithuti ho utlwisisa hore ha re bala dintho ho na le tatelano e beilweng bakeng sa mabitso a dinomoro, ho qalwa ka nngwe, mme ebe ho latela pedi, tharo, nne. Qalong, baithuti ha ba utlwisise hantle moelelo wa mabitso a dinomoro mme ba ka tlola dinomoro ha ba bala ka tatelano.

Ho etsa raeme kapa letoto la dinomoro ka molomo ho bolela ho phetapheta dinomoro ka hlooho. Esitana leha baithuti ba bala ka mehato e mmedi, e mehlano le e leshome ba sebedisa tsebo ya bona ya tatelano ena ya dinomoro. Ho ithuta mabitso a dinomoro le ho a phetapheta ka tatelano e nepahetseng ha ho bolele hore baithuti ba tseba ho bala dintho. Sena se fapane le ho balla ho fumana hore dintho 'di kae'.

Ho bala dintho

Ho bala dintho hape ho bitswa **ho bala ka dinomoro** kapa **ho balla diphetho**. Sena se bolela hore dintho kapa diketsahalo di nyalanngwa le lebitso la nomoro. Ho bala hore 'dintho di kae', baithuti ba hloka ho elellwa hore ntho ka nngwe e pokelong e fumana lebitso la nomoro ('nngwe, pedi, tharo, nne ...') le hore o bala ntho ka nngwe hanngwe feela.

Ka diketsahalo tse ngata tse etswang ka matsoho tse batlang tataiso ya titjhere, baithuti ba qala ho utlwisisa le ho sebedisa dintlhatheo tse latelang tsa ho bala:

- 1. Ntlhatheo ya neeletsano pakeng tsa ntho tse pedi:** Ho nyalanya lentswe le le leng feela la ho bala le ntho ka nngwe pokelong e balwang. Qalong baithuti ba ka bala ntho e le nngwe habedi, ba tlola ntho e nngwe kapa ba lebala hore ke dintho dife tse badilweng. Ho molemo hore baithuti ba thetse le ho fetisa dintho ha ba ntse ba di bala.
- 2. Ntlhatheo ya tatelano e sa fetoheng:** Mabitso a dinomoro a dula a hlophisitse ka tatelano e sa fetoheng, mohl. nngwe e latelwa ke pedi, pedi e latelwa ke tharo, tharo e latelwa ke nne, jwalojwalo.
- 3. Ntlhatheo ya nomoro ya ho bala:** Lebitso la nomoro ya ho qetela le bitsitsweng ha ho balwa pokello le emela paloyohle ya lenane la dintho tse pokelong eo.
- 4. Ntlhatheo ya tse sa tshwareheng:** Baithuti ba utlwisisa hore esitana leha dihlopha tse nang le lenane le lekanang la dintho di sa shebahale ka ho tshwana (mohl. merara e mehlano, batho ba bahlano, dintlo tse hlano) di na le lenane le lekanang, ke hore, 'bohano'. Ba elellwa hore ho bala ho ka etswa dinthong, ditshwantshong, mebaleng, dibopehong, kapa esitana le diketsahalang kapa medumong.
- 5. Ntlhatheo ya ho se shebe tatelano:** Tatelano ya ho bala dintho ka hara pokello ha e bohlokwa. Baithuti ba hloka ho utlwisisa hore ho sa natswe tsela eo re hlophisang dintho ka yona, lenane lohle la dintho ka hara pokello le dula le le jwalo.

TLELOSARI

ho bala ka molomo/ho bala ka modumo/ho bala ka morethetho

ho balla hodimo, o bitsa dinomoro ka tatelano e nepahetseng

ho bala ka dinomoro/ho balla diphetho

ho bala dintho bakeng sa ho fumana hore 'di kae'



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.

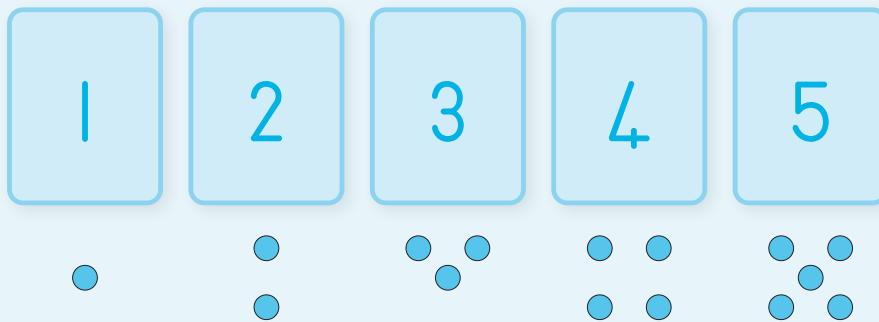


Figure 50 Counters represent number quantities in order.

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.



Setshwantsho sa 49 Mohlala wa ntlhatheo ya tse sa tshwareheng

Hang ha baithuti ba se ba utlwisa mme ba kgona ho sebedisa dintlhatheo tse hlano tse na kaofela, re ka bua ka boitshepo hore ba kgona ho bala dintho.

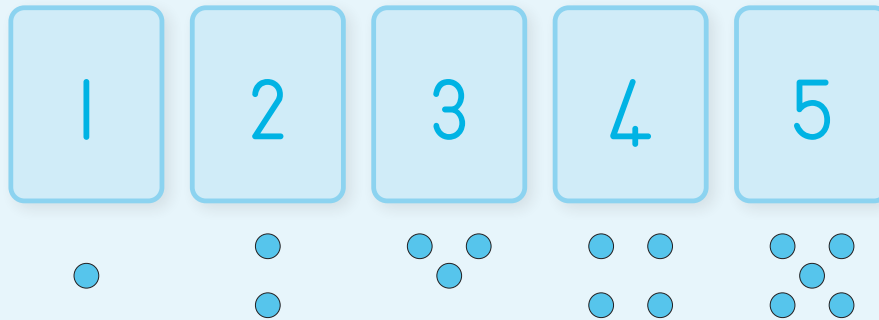


Diketsahalong ...



Diketsong, baithuti ba utlwisa hore ho bala ho ka sebediswa ho bapisa dipokello tsa dintho. Hang ha baithuti ba tseba tatelano ya ho bala kapa tatelano ya dinomoro tsa ho bala, ba:

- qala ho utlwisa hore nomoro ka nngwe tatelanong ya ho bala e kgolo ho e tlang pele ho yona ka nngwe mme e nyane ho e tlang kamora yona ka nngwe.
- kgona ho bapisa dinomoro ka hlooho mme ba bone hore pedi e kgolo ho nngwe ka nngwe, le hore tharo e kgolo ho pedi ka nngwe.
- elellwa hore dinomoro di hola ka nngwe nako le nako le hore nomoro efe kapa efe e tatelanong ya ho bala e kgolo ho e tlang pele ho yona ka nngwe hantle.



Setshwantsho sa 50 Dibadi di emela bongata ba dinomoro tatelanong.

Kakanyo

Leha ho bala ho le mabapi le ho fumana lenane le nepahetseng la dintho ka hara pokello, baithuti hape ba hloka ho ba le bokgoni ba ho akanya ele hore ba kgone ho bolela hore 'ekaba' dintho di kae pokellong e itseng. Ba hloka ho kgona ho sebedisa mareo a kang 'haholo', 'mmalwa', 'ho feta', 'tse ngata haholo' kapa 'tse lekanang le'. Ho lekanyetsa ho mabapi le baithuti ha ba sebedisa kutlwisiso ya bona ya nomoro ho tseba ho noha ka tsela e utlwalang le e nepahetseng mabapi le bongata le manane mme ba bile ba elellwa hore kakanyo ha e hloke ho nepisisa. Baithuti hangata ba qeaqea ho noha ka hobane ba tshaba ho fosa.



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.

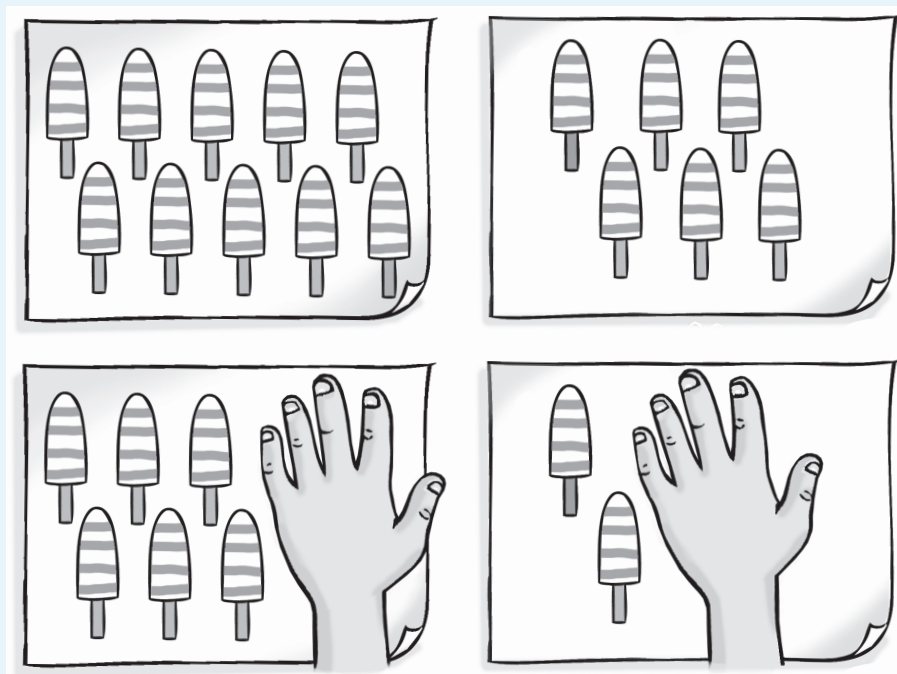


Figure 51 Estimating based on the visual image that is seen

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'.

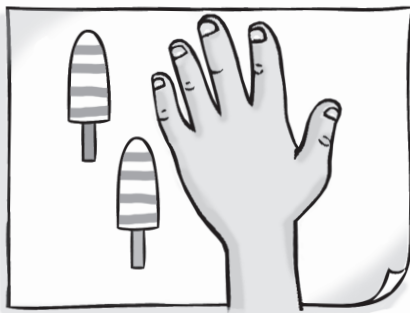
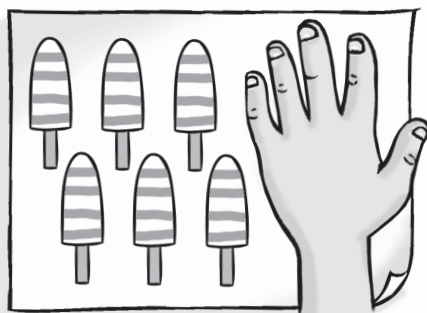
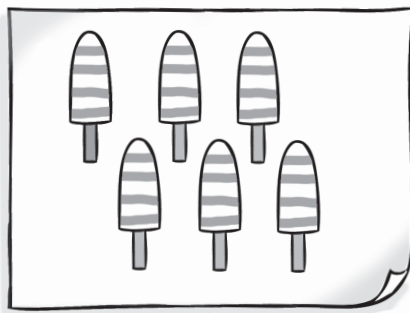
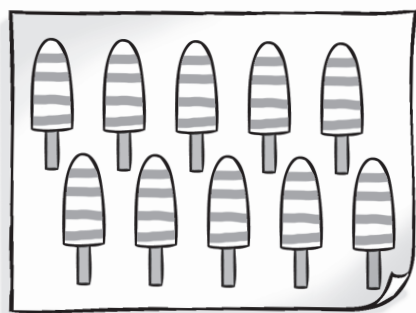


Diketsahalong ...



Leha baithuti ba keke ba kgona ho bala lenane la dintho ka nepahalo, ba ka fumana karabo ka ho akanya.

- Ho theilwe ho setshwantsho se bonwang baithuti ba kgona ho bona hore ho na le dintho tse ngata setshwantshong. Ba kgona ho bolela hore ke sefe se nang le dintho tse ngata kapa tse mmalwa.
- Baithuti ba ka fumana karabo ka ho sebedisa ho nyalanya ntho e nngwe ho e nngwe dipokellong tse pedi bakeng sa ho bapisa hore ke pokello efe e nang le tse ngata mme ke efe e nang le tse mmalwa.
- Baithuti ba ka bapisa lenane la dintho ditshwantshong tse pedi ka ho taka mola ho potoloha lenane le tshwanang la dintho setshwantshong ka seng.
- Hape baithuti ba ka sebedisa matsoho a bona ho kwahela lenane le itseng la dintho, ho etsa mohlala, diaesekerimi tse nne setshwantshong ka seng. Ho tla hlaka hore ho na le diaesekerimi tse ding tse sa kwahelwang setshwantshong sa pele.



Setshwantsho sa 5! Ho lekanyetsa ho theilweng ho setshwantsho sa pono se bonwang

Dinomoro tsa boemo

Dinomoro tsa boemo di sebediswa ho hlalosa sebaka kapa boemo ba motho kapa ntho, mohl. moleng. Baithuti ba utlwisisa hore haeba ba matha lebelo ha ba tswe ho ba 'tharo' empa ba tswa ho ba 'ba boraro'. Ka yona tsela eo, ba a tseba hore ha ba eme 'nngwe' moleng empa 'pele'.



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).



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

Ho sebetsa dipalo

Kutlwisiso e ntle ya dinomoro le ho bala ke ntho ya bohlokwa bakeng sa ho ithuta ho etsa dipalo. Baithuti ba hloka pele ho utlwisisa kamano pakeng tsa dinomoro: ho bapisa dinomoro, ho bea dinomoro ka tatelano le ho di arola (ho di heletsa le ho di aha) bakeng sa ho ithuta ditshebetso tsa dinomoro, jwaloka ho kopanya, ho tlosa, ho atisa le ho arola.

Diketsahalo le boiphihlelo tse kenyeletsang ho heletsa le ho aha dinomoro, ho kopanya le ho bapisa dipokello ke qaleho ya mohopolo wa ho tlisa mmoho (ho kopanya) le ho arohanya (ho tlosa). Baithuti ba Kereiti ya R hape ba kopana le ho kopanya le ho tlosa nakong ya dipapadi le diketsahalo tsa letsatsi le letsatsi, mohl. ha ba bapala 'mabenkele' mmoho kapa ba lokela ho abelana ka dibapadiswa. Bakeng sa ho tlosa, baithuti ba hloka ho nka karolo diketsahalong tsa nnete tse kenyeletsang 'ho tlosa', ka mantswe a mang, ho fumana hore ho setse tse kae pokellong ya dintho ha tse ding di tlositswe. Qalong baithuti ba tla sebedisa mawa a ho bala dintho bakeng sa ho rarolla mathata a kenyeletsang ho kopanya kapa ho tlosa, mohl. ho bala dintho tsohle dipokellong tse pedi ho fihlella paloyohle ha dipokello tseo tse pedi di kopantswe, kapa ho bala hore ho setse dikhoine tse kae ha tse ding ho fanwe ka tsona.

Katiso, karolo le dipalo tsa dikarolwana ha di eso rutwe ka molao ho Kereiti ya R,

empa baithuti ba sebedisa dikgopolo tsena ha ba rarolla mathata a kenyeletsang ho etsa dihlopha tsa dintho leha ba arolelana ka ho hong ka ho lekana. Diketsahalo tse kenyeletsang ho kopanya ho phetaphetwang le ho tlosa ho phetaphetwang di aha motheo bakeng sa dikgopolo tsa katiso le karolo. Diketsahalo tsena hape di thusa ho bopa kamano pakeng tsa ho kopanya le ho atisa, ho tlosa le ho arola, e leng ntho tse lokelang ho utlwiswa ha morao sekolong.



Diketsahalong ...



Efa baithuti mathata a sibollang ho etsa dihlopha tse lekanang le ho arolelana ka ho lekana, ho etsa mohlala:

- 👉 Kopa baithuti ba bararo ho nka dibadi tse pedi moithuti ka mong. Mmoho balang paloyohle ya dibadi, mohl. pedi le pedi ke nne le pedi ke tshelala (ho kopanya ho phetaphetwang).

- 👉 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.

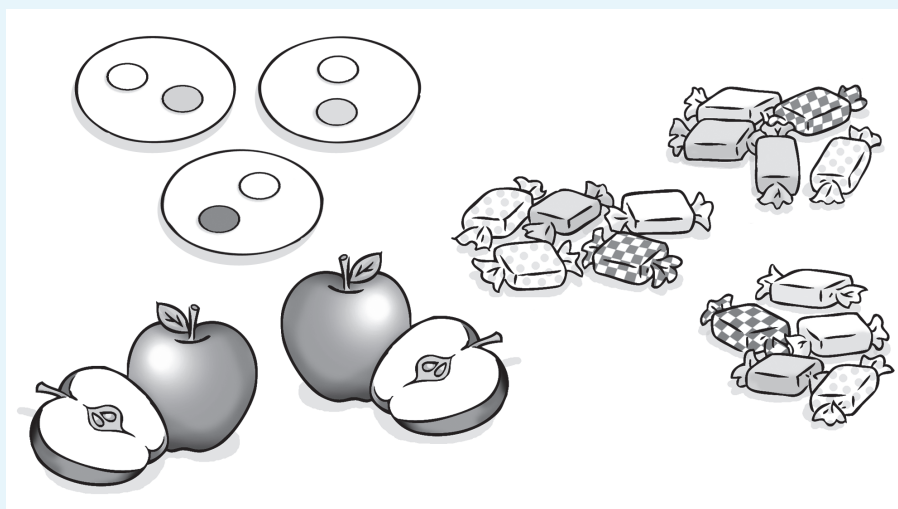
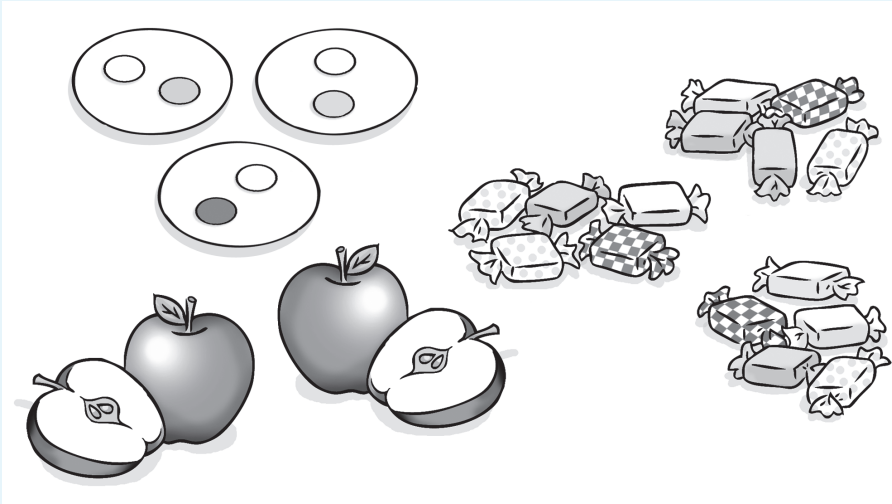


Figure 53 Using objects for calculations

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 dibadi tse tsheletseng hodima mmata. Tlosa tse pedi ka nako mme o re, 'tshela ha ke tlosa pedi, ho sala nne, ha ke tlosa pedi ho sala pedi, ha ke tlosa pedi ha ho sale letho' (ho tlosa ho phetaphetwang).
- 👉 Efa baithuti didikadikwe tse sehilweng. Ba kope ho etsa dihlotshwana tse lekanang hodima sedikadikwe ka seng ba sebedisa dibadi, mohl. tse pedi ka hara sedikadikwe ka seng.
- 👉 Kopa baithuti ho arolelana dintho ka ho lekana, mohl. arola dibadi tse 15 mahareng a baithuti ba bararo.
- 👉 Kopa baithuti ho arola dintho moo e setseng e lokelang ho arolelana le yona, mohl. arola diapole tse pedi ka ho lekana pakeng tsa baithuti ba bararo.



Setshwantsho sa 53 Ho sebedisa dintho bakeng sa ho etsa dipalo

Dipotso tse ka botswang bakeng sa Dinomoro, Matchwao le Dikamano

- Na o ka hlophisa tsena ka tsela e fapaneng?
- Ho na le tse kae?
- O ka bala tse kae?
- Ke mang ya nang le tse ngata/mmalwa?
- Ke nomoro efe e tlang pele ho ...? Ke nomoro efe e tlang kamora ...? Ke nomoro efe e pakeng tsa ... le ...?
- Ho na le tse kae tse ngata ho feta sehlotshwaneng sena?
- Ha re arola dintho tsena ka ho lekana pakeng tsa rona, re tla fumana tse kae motho ka mong?
- Ha nka kwahela tse ding tsa tsena, ke patile tse kae?
- Nomoro ena ke mang? (o bontsha karete ya nomoro kapa nomoro e ngotsweng)
- Na o ka bea dikarete tsa dinomoro ka tatelano?
- Ke mang ya emeng pele, wa bobedi, ...?
- Haeba o ena le tse pedi tsa tsena, mme ke o fa tse ding hape tse pedi, o tla ba le tse kae jwale?
- Haeba ke ena le tse tharo tsa tsena mme ke o fa e le nngwe, ke tla ba le tse 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

Tlotlontswe bakeng sa Dinomoro, Matshwao le Dikamano

Bala le ho elellwa dinomoro

- nyalanya, hlophisa, bapisa
- nomoro
- nngwe, pedi, tharo ... mashome a mabedi le ho feta
- ha eyo, ha ho letho, lephaka, noto, haholetho
- di kae ...?
- bala (ho fihla) ho
- bala (ho tloha ho, ho isa ho)
- bala o eya morao (ho tloha ho, ho isa ho)
- bala ka bonngwe, bopedi ... mashome ...
- ngata ho feta, ngata, mmalwa, mmalwa ho feta
- mmalwa ho feta, kgolo ho, ho fetisisa, nyane ho fetisisa
- ngata haholo, mmalwa haholo, lekane, ha di a lekana
- e nngwe le e nngwe e latelang
- sehlopha, pokello
- batlile, haufi le, e batla e tshwana le
- ho setse tse kae, e setseng
- ka hodimo feela, ka tlase feela

Bapisa le ho bea dinomoro ka tatelano

- nyalanya, hlophisa, bapisa, tatelano
- nomoro e tshwanang le, tse ngata jwalo ka
- e le nngwe ho feta, tse pedi ho feta, ...
- e ka tlase ka e le ngwe, e ka tlase ka tse pedi, ...
- ka pela, kamora, e latelang, e pela, pakeng tsa
- -pele, -bobedi, -boraro ... -leshome
- ho qetela, pele ho, kamora

Ho dintho tse **pedi**/bongata: kgolo ho, e feta, e kgolwanyane, ka tlase ho, mmalwa ho, nyane ho

Ho dintho tse **tharo**/bongata: kgolohadi, ho fetisisa, kgolo ho fetisisa, tlase ho fetisisa, mmalwa ka ho fetisisa, nyane ho fetisisa

Matshwao mmoho le dinomoro

Ho kopanya le ho tlosa

- nyalanya, bapisa
- eketsa, ho feta, le
- mmoho, tsohle mmoho
- phetapheto/halofo
- e nngwe ho feta, tse pedi ho feta, ...
- re eketsa ka tse kae ho etsa ...?
- ... e feta ... ka tse kae?
- nka, tlosa
- ka tlase ka nngwe, ka tlase ka pedi, ...
- ho setse tse kae?
- phapang pakeng tsa

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

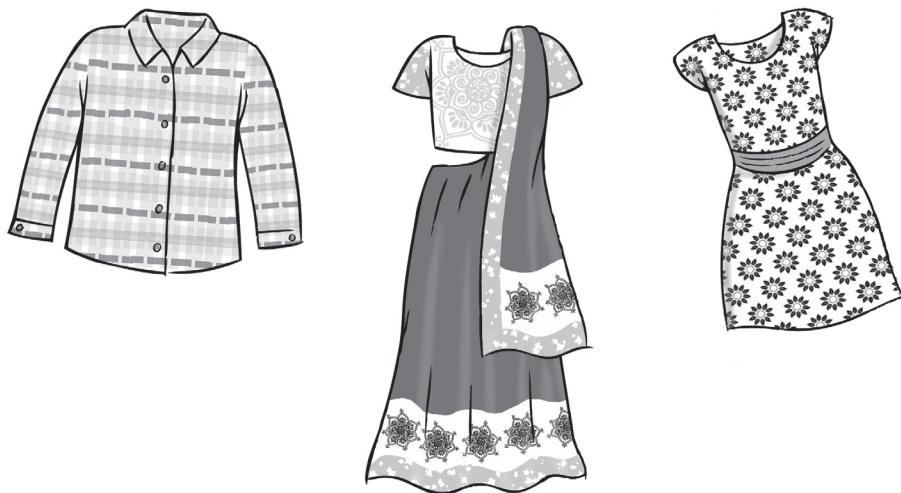


Figure 54. Patterns in clothes

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

Katiso le karolo (ho arola)

- dihlotshwana, dihlopha tsa pedi, tharo, ...
- arola ka ho hloka leeme/ka ho lekana
- arola, arola pakeng tsa/mahareng a
- arola e le nngwe/ka hodimo ho nngwe ka nako
- e tshwana le, e fapane le
- ho setse tse kae, tse setseng

Tekatekano

- nyalanya, bapisa
- di tshwana hantle
- tshwana le, fapane le
- etsa
- lekana le
- dihlopha tse lakanang

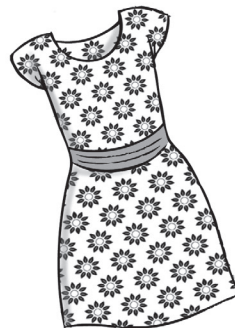
Akanya

- nyalanya, bapisa
- noha hore di kae; akanya
- batlile, haufi le
- e batla e tshwana
- ka tlase feela, ka hodimo feela
- ngata haholo, mmalwa haholo, lekane, ha di a lekana

Dipaterone, Ditshebetso le Aljebra

Paterone e hohle moo re leng teng. Bana ba kopana le dipaterone le **ditatelano** boitshwarong ba batho, mesebetsing ya letsatsi le letsatsi, matsatsing a beke, dikgweding tsa selemo, le disaekeleng tsa maemo a lehodimo, mminong le bononong, le ho tikeloho ya bona e ahilweng. Ho etsa mohlala:

- ★ diaparong



TLELOSARI

paterone

tatelone e tlwaelehileng ya dintho, metsamao kapa diketsahalo tse phetaphetwang ka tsela e eellwehang

tatelano

tsela e itseng eo ka yona dintho, metsamao kapa diketsahalo di salanang morao

Setshwantsho sa 54. Dipaterone diaparong

★ buildings

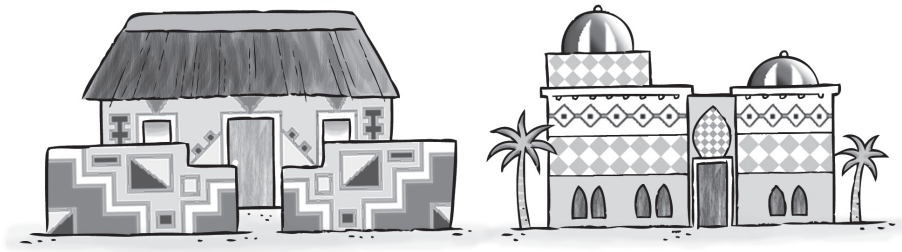


Figure 55 Patterns in buildings

★ nature

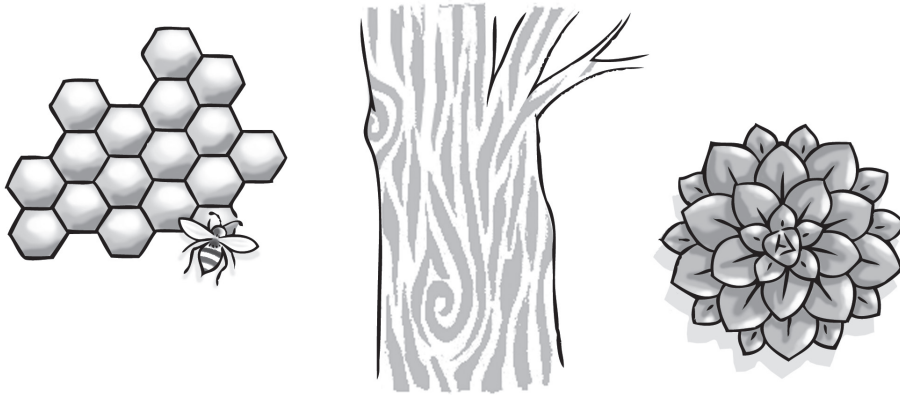


Figure 56 Patterns in nature

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.

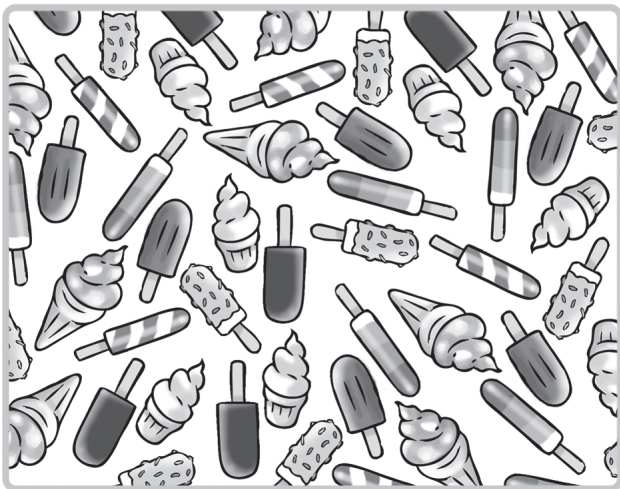
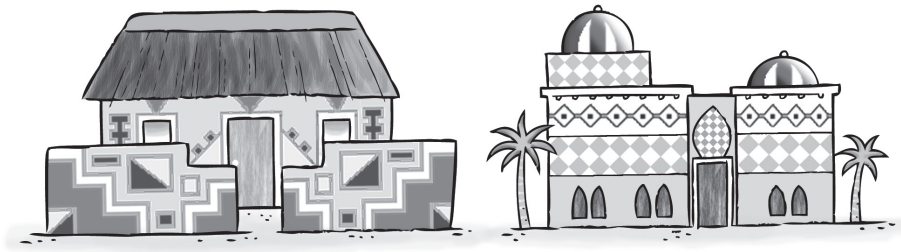


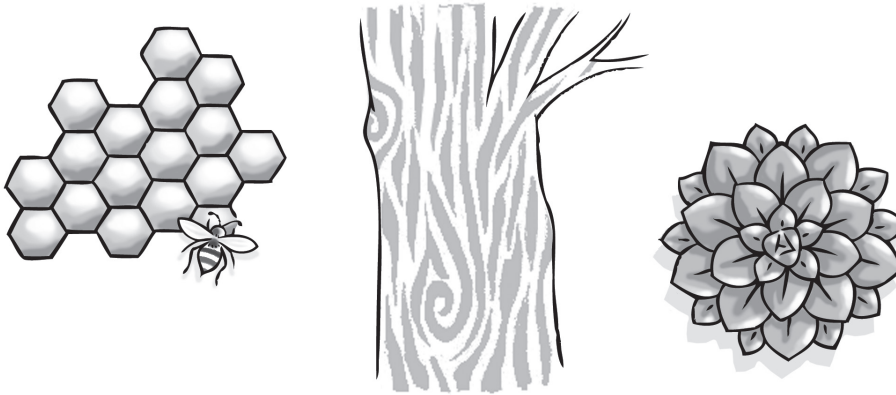
Figure 57 Irregular patterns

★ meaho



Setshwantsho sa 55 Dipaterone meahong

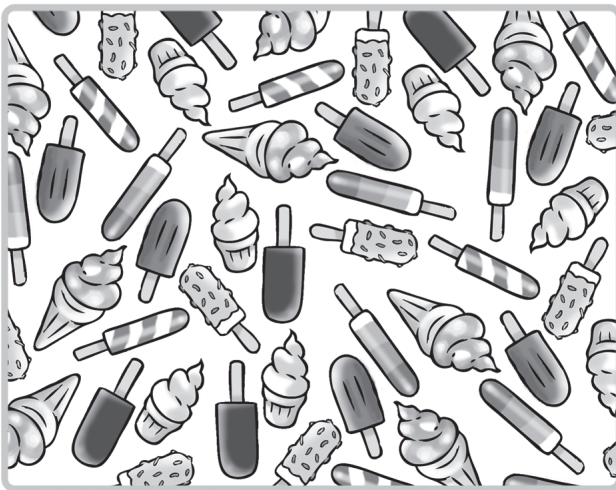
★ tlhaho



Setshwantsho sa 56 Dipaterone tlhahong

Ho hlwaya dipaterone

Bana ba banyenyane ba rata ho tsepamisa maikutlo ho mmala le ho rateha ha setshwantsho kapa ntho, mohl. sekgetjhana sa pampiri ya ho phuthela, mme ba re e na le 'paterone e ntle'. Tse ngata tsa dipaterone tse na ke **dipaterone tse sa tlwaelehang**. Re a bona hore ho na le phetapheto ya dintho, mebala kapa dibopeho empa ha re kgone ho bona hantle kamoo phetapheto eo e tsamayang ka teng.



Setshwantsho sa 57 Dipaterone tse sa tlwaelehang

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

Matitjhere a lokela ho eelliswa baithuti dipaterone tse ka hara phaposi ya borutelo le tse ka ntle. Ho etsa mohlala, ba bontshe kamoo ditene tse leboteng di hlophisitsweng ka teng, dithaele tse tseleng ka ntle kapa matshwao a ho diphoofole.



Setshwantsho sa 58 Dipaterone hohle moo re phelang

Ho **paterone e tlwaelehileng** re kgona ho bona kamoo **dielemente** ka hara paterone di phetaphetilweng ka teng mme re ka noha tatelano kapa tlhophiso eo paterone e tlang ho e latela, mohl. pateroneng e ka tlase mona re kgona ho bona hore sedikadikwe le kgutlonnetsepa di phetaphetilwe mme re ka noha hore sebopoho se latelang e tla ba sedikadikwe, se latelwe ke kgutlonnetsepa, jwalojwalo.

TLELOSARI

dielemente
dintho, metsamao
kapa diketsahalo
pateroneng



Setshwantsho sa 59 Paterone ya sedikadikwe, kgutlonnetsepa

Kereiting ya R, baithuti ba ka kgona ho lemoha paterone empa ba ka nna ba se kgone ho hlwaya kapa ho hlalosa 'se etsang paterone eo'. Matitjhere a ka thusa baithuti ho hlwaya dipaterone ka ho ba botsa hore ke eng se etsang paterone e itseng le kamoo dielemente di hlahlamantsweng. Ho etsa mohlala, pateroneng e ka hodimo: 'Ke sebopoho sefe se tlileng pele? Ke sebopoho sefe se latelang? O nahana hore ke sebopoho sefe se tlang ho latela?'

Mefuta e fapaneng ya dipaterone

Dipaterone tsa jeometri

Paterone ya jeometri ke paterone e entsweng ka mela le dibopoho tsa jeometri tse beilweng ka tatelano e phetaphetilweng, ho etsa mohlala, rombase, kgutlonne, kgutlonnetsepa kapa phentagone. Dipaterone tsa jeometri di ka fumanwa hohle moo re phelang, mohl. dithaeleng tsa fatshe le pampiring ya ho phuthela.



Setshwantsho sa 60 Dipaterone tsa jeometri

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.

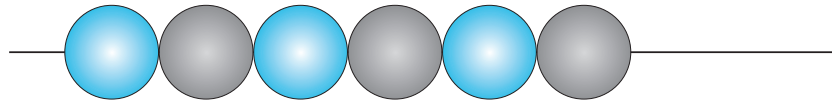


Figure 61 AB pattern

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

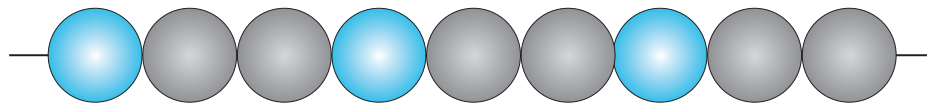


Figure 62 ABB pattern

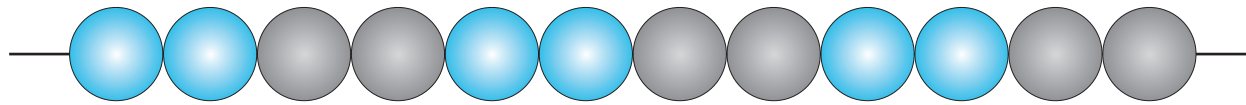


Figure 63 AABB pattern

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

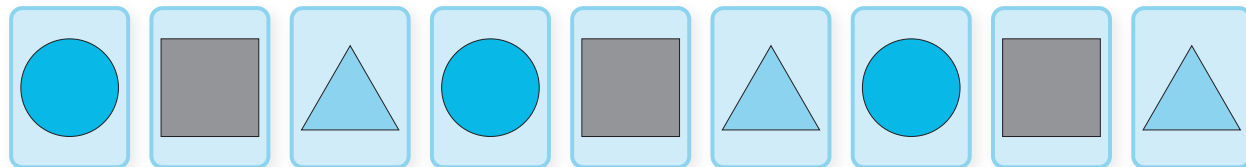


Figure 64 ABC pattern

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.

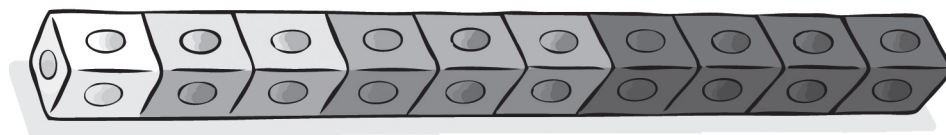
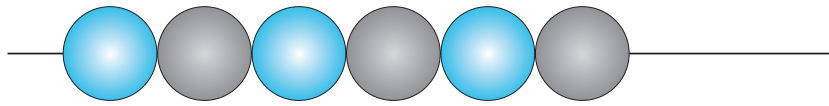


Figure 65 Growing pattern

Dipaterone tse iphetaphetang

Dipaterone tse iphetaphetang di entswe ka tatelano e phetaphetilweng ya dielemente, ho etsa mohlala, dibopeho, mebala, medumo, dintho, metsamao kapa diketsahalo. Pateroneng e iphetaphetang, dielemente tse tshwanang di phetaphetwa hangata.



Setshwantsho sa 61 Paterone ya AB

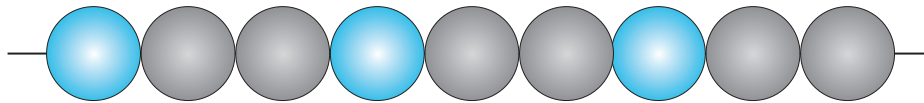
Qala ka ho tsebisa bana dipaterone tse nang le **lekgetha** le le leng feela le fapaneng, mohl. mmala kapa sebopelo, mme o fane ka tatelano e telele bo lekaneng ya phetapheto ele hore baithuti ba kgone ho iphumanela paterone.

Baithuti jwale ba ka lemoha dipaterone tse ding tse thatanyana, jwaloka dipaterone tsa ABB kapa AABB.

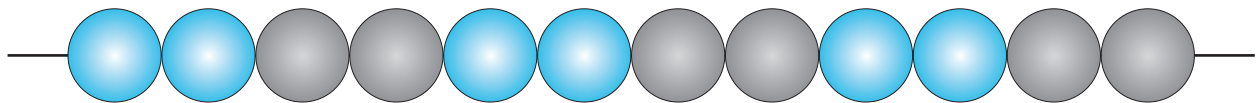
TLELOSARI

lekgetha

sebopelo kapa popeho e kgethang ho hong, ho etsa mohlala, mmala kapa sebopelo

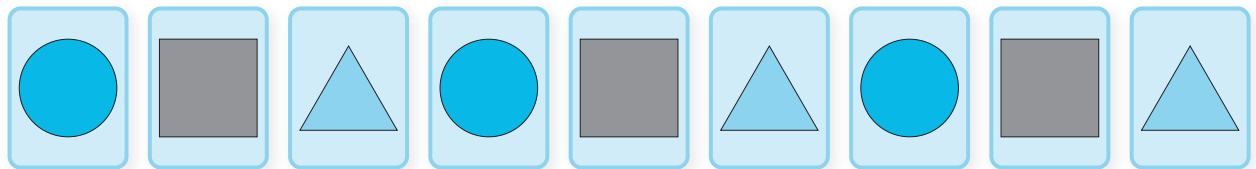


Setshwantsho sa 62 Paterone ya ABB



Setshwantsho sa 63 Paterone ya AABB

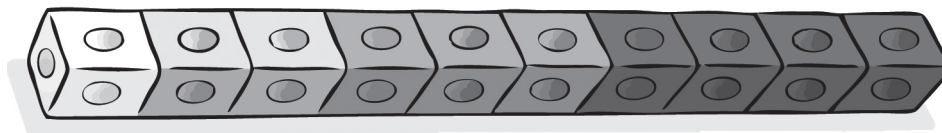
Butlebutle tsebisa baithuti dipaterone tse nang le makgetha a mabedi kapa ho feta, jwaloka mmala le sebopelo.



Setshwantsho sa 64 Paterone ya ABC

Dipaterone tse holang

Dipaterone tse holang di fapane le dipaterone tse iphetaphetang ka hore paterone e a eketseha kapa e a fokotseha ka boholo tatelanong ka nngwe. Pateroneng e ho Setshwantsho sa 65, lenane la diboloko tse mebala le eketseha ka nngwe tatelanong ka nngwe ya diboloko.



Setshwantsho sa 65 Paterone e holang

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



Figure 66 Growing pattern

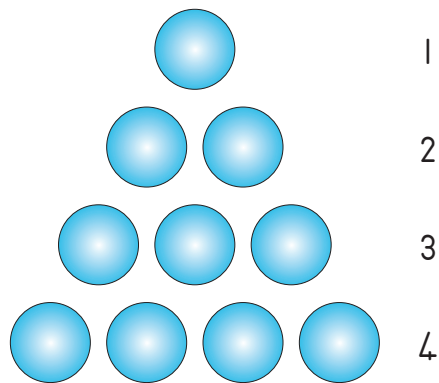


Figure 67 Growing pattern

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

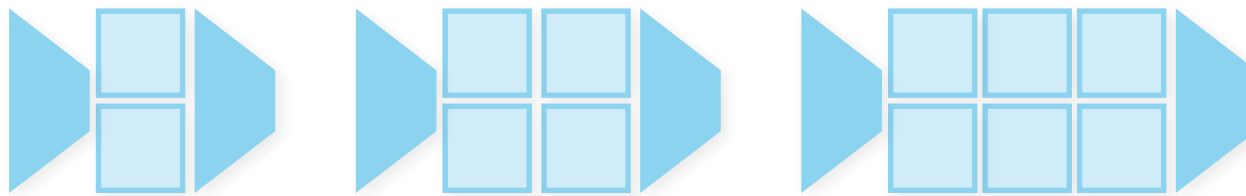


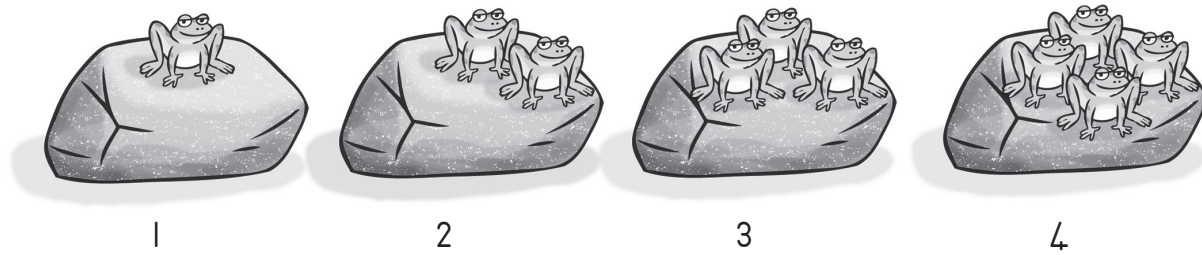
Figure 68 Growing pattern

Patterning skills – what learners need to know

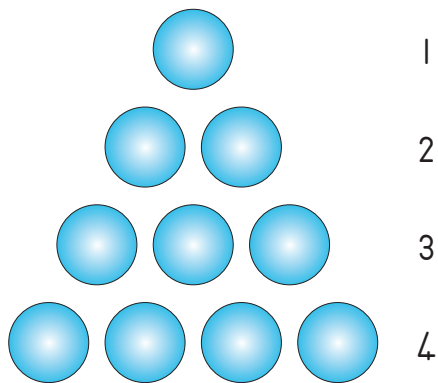
Learners' skills will vary, but generally Grade R learners will work towards being able to:

- ★ 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

Baithuti ba ka amanya paterone le tatelano ya dinomoro mme ba lemoha hore lenane le eketseha ka nngwe nako le nako.

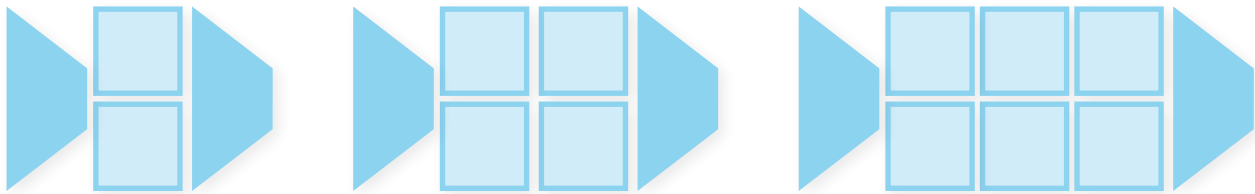


Setshwantsho sa 66 Paterone e holang



Setshwantsho sa 67 Paterone e holang

Pateroneng e ka tlase mona, tatelano e eketseha ka pedi nako le nako.



Setshwantsho sa 68 Paterone e holang

Bokgoni ba ho etsa dipaterone – seo baithuti ba hlohang ho se tseba

Bokgoni ba baithuti bo tla fapana empa ka kakaretso baithuti ba Kereiti ya R ba tla sebeletsa hore ba qetelle ba kgonne ho:

- ★ nyalanya le ho hlophisa dintho ho ya ka lekgetha le le leng kapa a mangata, mohl. sebopeho, mmala, modumo
- ★ bapisa ditshwano le diphapang dinthong tse pedi kapa ho feta
- ★ bua ka dipaterone tse hlahellang dinthong tseo ba kopanang le tsona letsatsi le letsatsi
- ★ lemoha dipateone tse tikolohong ya bona, mohl. dipalo tsa terata, ditene, pheiving
- ★ hlwaya dipaterone
- ★ kopolla dipaterone tse entsweng ke ba bang
- ★ atolosa dipaterone tse qadilweng ke ba bang

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

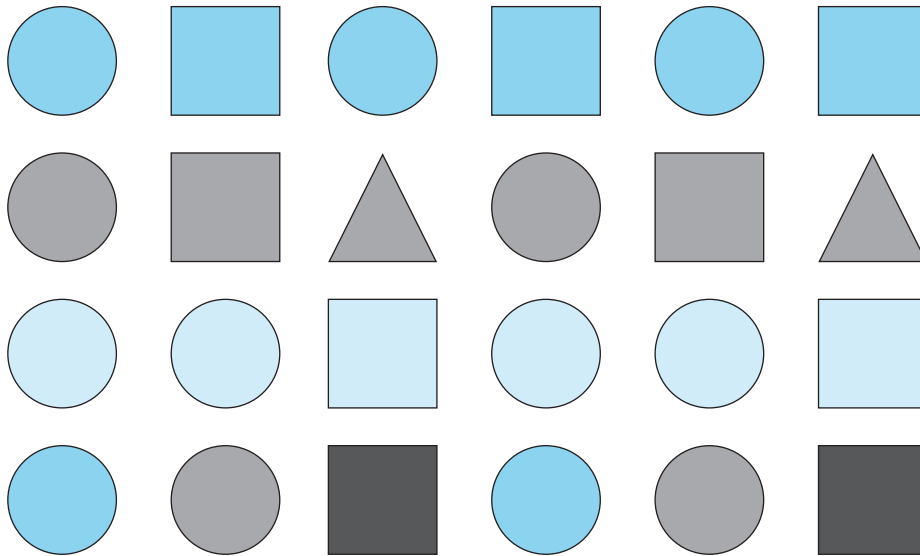


Figure 69 Creating patterns

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



In practice ...



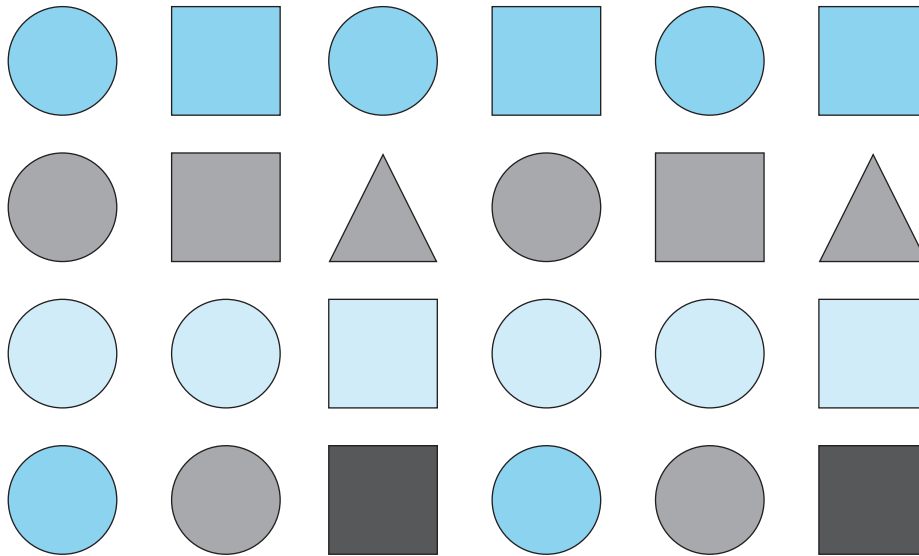
Teachers should guide learners to recognise and make patterns and provide opportunities for them to observe, describe and discuss patterns, focusing on activities that involve:

- 👉 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?

★ iketsetsa dipaterone tsa bona maamong a fapaneng a bothata jwaloka:



Setshwantsho sa 69 Ho etsa dipaterone

★ bolela hore ke eng se siyo haeba karolo ya paterone e patilwe.



Diketsahalong ...



Matitjhere a lokela ho tataisa baithuti hore ba lemohe le ho etsa dipaterone mme ba fane ka menyetla hore ba bone, ba hlalose le ho buisana ka dipaterone, ba tsepame ho diketsahalo tse kenyeletsang:

- 👤 ho bua ka 'se etsang paterone'
- 👤 ho sibolla dipaterone ka ho sebedisa dintho, ditshwantsho le morethetho, jwaloka ho opa matsoho, nakong ya tsepamiso ya mmetse esitana le bonono ba boiqapelo, mmimo le diketsahalo tsa mmele tsa ka ntle
- 👤 ho iketsetsa dipaterone tsa bona le ho bua ka mekgwa le mabaka a hore ke hobaneng ba beile dielemente ka tatelano e itseng
- 👤 ho taka dipaterone le ho sebedisa mebala e fapaneng le dibopeho tse fapaneng, le ho bua ka tsela eo paterone e phetaphetilweng ka yona.

Dipotso tse ka botswang bakeng sa Dipaterone, Ditshebetso le Algebra

- Na o bona paterone? Ako mpoelle ka yona.
- Ke eng e tlang pele, qetellong, e latelang, kamora, pele ho?
- Na dipaterone tse pedi tsena di a tshwana? Ke eng e fapaneng? O ka etsa jwang hore di tshwane?
- Na o ka kopitsa paterone ena? Ke eng se latelang pateroneng ena?
- Nka etsa eng ho atolosa paterone ena?
- Na o ka mpoella hore paterone ya hao ke eng? Na o ne o ka etsa paterone e fapaneng? Ke eng se siyo pateroneng ena?

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

Tlotlontswe bakeng sa Dipaterone, Ditshebetso le Aljebra

- nyalanya, bapisa, tatelano, tlhahlamano
- qala, qalong
- -pele, -mahareng, -ho qetela
- pele ho, kamora, qetelo
- ke efe e latelang ...?
- boholo
- kgolo, kgolo ho feta, kgolo ka ho fetisisa
- nyane, nyane ho feta, nyane ka ho fetisisa
- tshwana, fapane, phapang
- mabitso a mebala
- aha paterone
- ehlwa
- bontsha, hlwaya
- tswela pele, qhoba, atolosa
- kopolla/kopitsa
- pheta, hape
- hlalosa, hlakisa
- ke eng e tlang pele ho/kamora?
- e latela, pakeng tsa
- moleng, lethathameng
- sebaka, siilwe dibaka

Sebaka le Sebopeho (Jeometri)

Bana ba banyenyane ba ithuta sebopeho le sebaka nakong ya diketsahalo tsa kamehla ha ba ntse ba leka ho utlwisisa dipopeho le dibopeho tse ba potileng, jwaloka sefahleho sa mme, dintho tse tsamayang le mmele ya bona. Ba sibolla mareo a sebaka a tsamaelanang le sebopeho le sebaka ha ba bapala ka dibolo kapa ba kena ba etswa ka hara mabokoso mme ba palama hodima dintho kapa ba kena ka tlasa tsona. Ba lemohile dibopeho tse fapaneng tsa dintho tse malapeng a bona le ka ntle, jwaloka maru, meaho, mahlaku le dipalangwang.

Bana ba bangata ba tla Kereiting ya R ba ena le tsebo e itseng ya dibopeho tse fapaneng mme ba ka kgona ho ehlwa le ho taka dibopeho tse kang didikadikwe le dikgutlotharo. Hape eka nna yaba ba kile ba bapala ka diboloko, dibapadiswa tsa ho aha le diphazele. Kereiting ya R, baithuti ba ahella ho tseo ba kileng ba kopana le tsona ha ba ntse ba ithuta ka sebaka, sebopeho boemo, **tlwaetso**, ditjhebo le ditshupiso. Ba hloka menyetla e mengata ya ho fuputsa le ho sibolla dintho tse fapaneng tsa letsatsi le leng le le leng. Boiphihlelo bona ba sebaka le sebopeho bo ba thusa ho aha motheo o tiileng bakeng sa ho utlwisisa **jeometri** dikereiting tse latelang ha morao.

TLELOSARI

tlwaetso

kamoo dintho di bewang papisong le tse ding

jeometri

ntlha e itseng ya mmetse e sebetsanang le dikarolo, mometho le dikamano tsa dintlha, mela le dikgutlwana tsa dibopeho sebakeng

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.

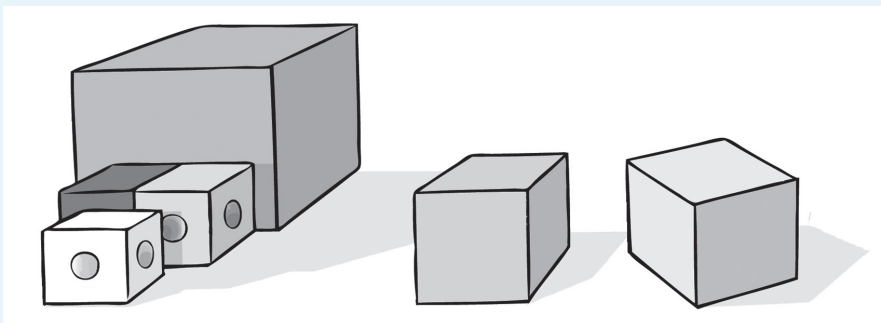


Figure 70 Exploring position

Sebaka

Bana ba itlwaetsa sebaka ka ho sebedisa mmele ya bona. Ba qala ka ho sibolla kamanong pakeng tsa bona, batho ba bang le dintho. Masea a nanabela le ho tshwara dintho tse haufi le bona, mme ebe butlebutle ba qala ho ya kwana le kwana le ho sibolla tikoloho ya bona ba sebedisa dikutlo tsa bona kaofela. Ba sibolla se etsahalang ha ba sututsa, ba hula, ba theta kapa ba fetola dintho tse fapaneng ha ba ntse ba bapala ka tsona, mme ha ba etsa sena ba ikutlwisisa hore ba hokae kamanong le dintho tseo. Hape ba ithuta dithibelo tseo ba di fumanang motsamaong wa mmele wa bona ha ba ntse ba palama ditulo le ho kena ka tlasa tsona, ba kena ka mabokosong, ba ipata kamora difate kapa ba sheba fatshe mane ha ba le hodimo ditepising.

Boemo

Boemo Kereiting ya R bo qala ka boemo ba dintho kamanong le moithuti, mme bo tswela pele ho ya boemong ba dintho kamanong le dintho tse ding. Tlotlontswe ya boemo e kenyeletsa ka hare, hodima, ka hodimo, ka pela, kamora, pakeng tsa, pela, jwalojwalo.

Ka thuso ya batho ba baholo lapeng le matitjhere sekolong, baithuti ba Kereiti ya R ba ka ba le tlotlontswe ya ho hlalosa sebaka, boemo le nqa e itseng ha ba ntse ba bapala, ba batlana le dintho kapa ba palamela hodima dintho kapa ba kena ka hara tsona.



Diketsahalang ...

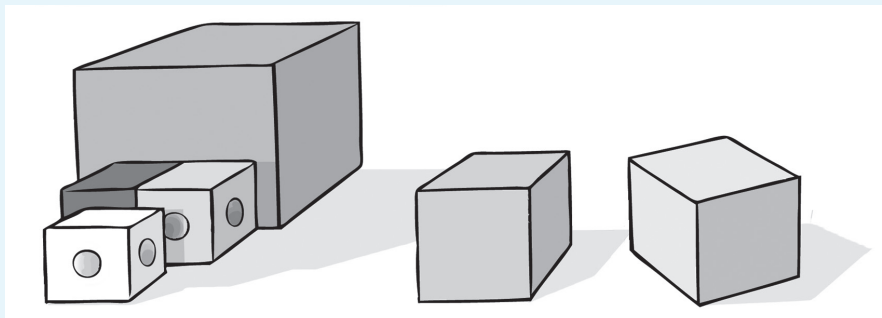


Ho na le menyetla e mengata motsheare bakeng sa baithuti ya ho nahana ka sebaka le ho sebedisa tlotlontswe ya boemo:

- dipapading
- ha ba phutha dintho ka nako ya ho hlwekisa
- ha ba eme meleng
- ha ba bua ka moo dintho di leng teng ditshwantshong le dipaleng.

Ho dumella baithuti ho sibolla metsamao ya bona:

- etsa tselana e nang le ditshita ka hare kapa ka ntle o sebedisa ditulo, ditaere, mabokoso le/kapa mapolanka
- tshwantshisang dipale tse sebedisang tlotlontswe ya mmetse mabapi le boemo, mohl. hodima le ka tlasa, hodimo le tlase, haufi le hole, pela le pakeng tsa
- bea dintho maamong a fapaneng le dibakeng tse fapaneng
- kopa baithuti ho sheba dintho maamong a fapaneng (tjhebo) mme ba bolele seo ba se bonang.



Setshwantsho sa 70 Ho sibolla boemo

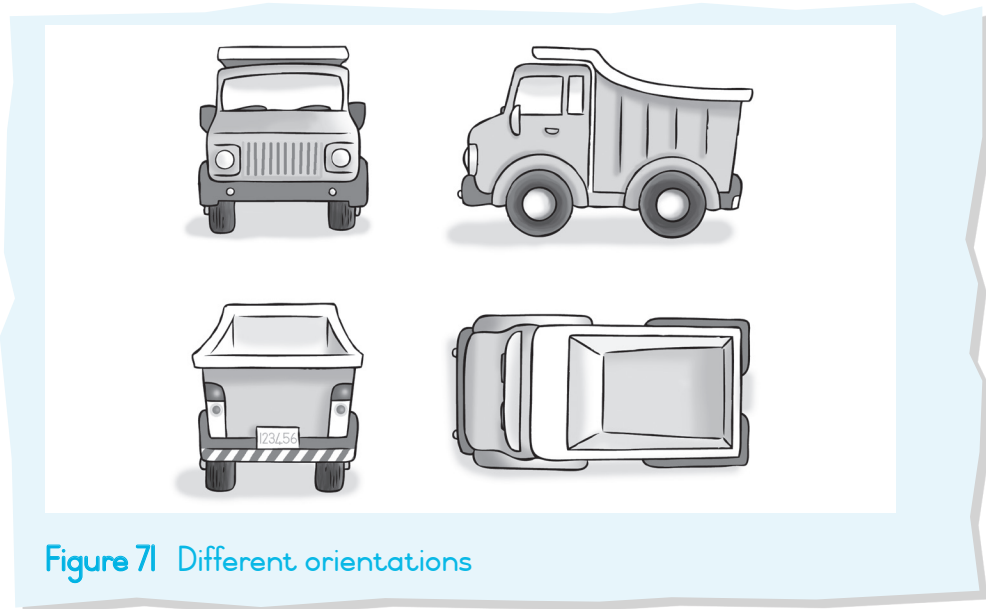


Figure 71 Different orientations

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 ...

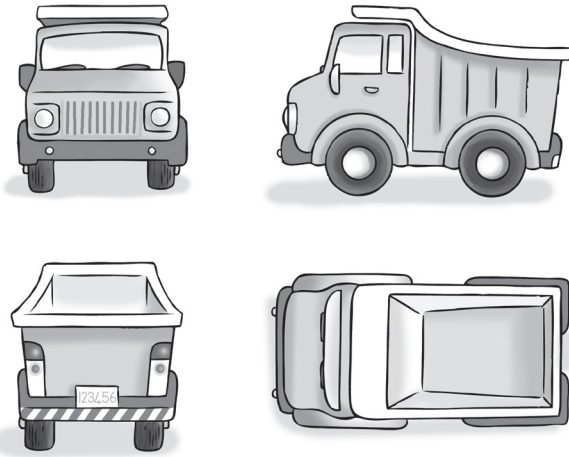


-  Observe people and objects outside the classroom and talk about why they look smaller.
-  Close one eye and measure how big a person or object looks and talk about whether they are really that small.
-  Focus attention on objects in pictures that appear to be small and talk about why this is so.

GLOSSARY

perspective

the effect of distance or depth on the appearance of objects



Setshwantsho sa 71 Dibakeng tse fapaneng

Tshupiso




Baithuti ba Kereiti ya R pele ba qala ba bontsha tshupiso ka ho supa, ebe ba sebedisa mantswe a bonolo a kang 'mola'. Kgopolo ya tshupiso e tswela pele ho tloha ho maemo ao bana ba leng ho ona ho isa ho moo ba leng teng papisong le dintho tse ding, mohl. eya pele, thinya, jwalojwalo.



Diketsahalong ...



Sebedisa tlotslontswe ya tshupiso:

-  nakong ya diseneke le ya ho hlwekisa
-  ha o fana ka ditaello tsa moo ba lokelang ho bea dintho le ho tloha sebakeng se seng ho ya ho se seng
-  ha le intsha.




Tjhebo

Kereiting ya R, ha baithuti ba ntse ba fumana kutlwisiso e eketsehileng ya hore ha dintho di le hole mane di shebahala eka di nyane, kutlwisiso ya bona ya **tjhebo** e a hola.



Diketsahalong ...



-  Shebang batho le dintho ka ntle ho phaposi ya borutelo mme le buisane ka hore ke hobaneng ha di shebahala di le nyane.
-  Kwala leihlo le le leng mme o methe hore motho kapa ntho e shebahala e le kgolo hakae mme le buisane ka hore na di fela di le nyane jwalo na.
-  Tsepamisang maikutlo ho dintho tse ditshwantshong tse shebahalang di le nyane mme le buisane ka hore ke hobaneng ho le jwalo.

TLELOSARI

tjhebo

kamoo bohole kapa botebo bo amang tjhebeho ya dintho

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 inner 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)

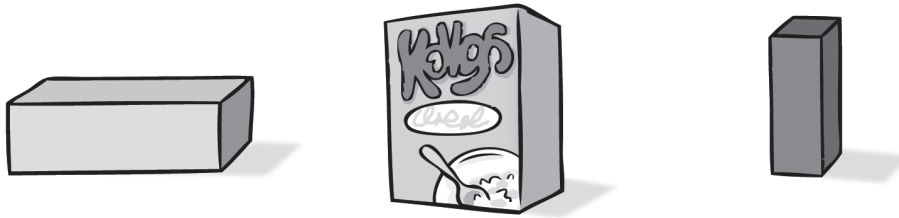
3-dimensional (3-D)

an object has three dimensions: length, breadth (width) and height

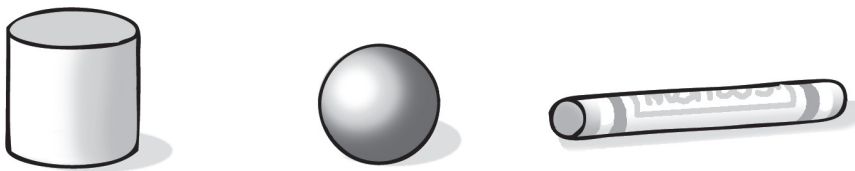
property

the characteristics of a 2-D shape or 3-D object, e.g. length, width, height, sides (faces), edges, corners

These all have flat faces.



These will all roll.



These all have triangles on some of their faces.

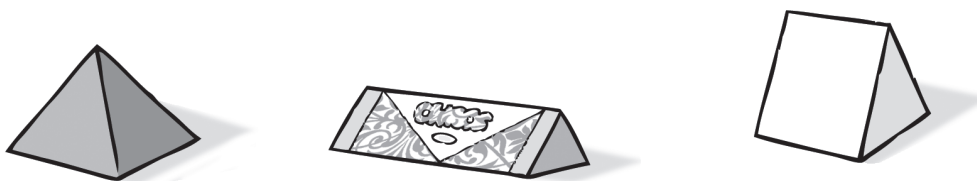


Figure 72 3-D objects

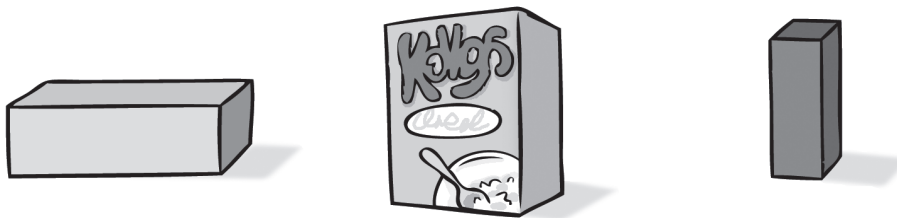
Sebopeho

Kereiting ya R, baithuti ba tsepama ho lemoheng, ho hlwayeng le ho bolela dintho tsa **mahlakore a 3 (3-D)** le dibopeho tsa **mahlakore a 2 (2-D)**. Ka puo ya kamehla, baithuti ba tla re ba ka sheba ntho ho tswa mahlakoreng ohle, ka hodimo le ka tlase. Ho ya ka mmetse re hlalosa **makgetha** a dintho tsa 3-D ka bolelele, bophara le bophahamo ba tsona. Ka puo ya kamehla baithuti ba tla bua ka dibopeho tsa 2-D tse kang ditshwantsho, empa ho ya ka mmetse re bua ka dibopeho tse nang le bolelele le bophara (bobatsi) bakeng sa ho hlalosa mahlakore a mabedi.

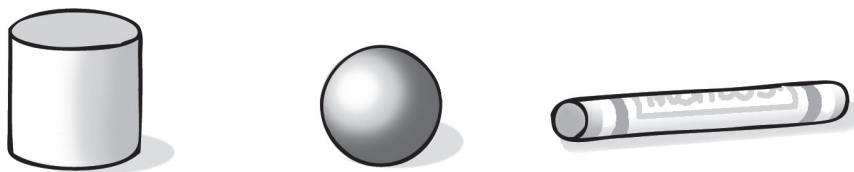
Dintho tsa mahlakore a mararo (3-D)

Kereiting ya R, baithuti ba sibolla makgetha a dintho tsa kamehla tsa 3-D. Ba aha meaho ba sebedisa dintho tsa ka tlung tse resaekelwang tse kang mabokoso, makotikoti, ditshelo tsa polasetiki, bokahare ba pampiri ya ntlwana le dibolo. Ba fuputsa le ho hlalosa mabokoso le dintho tsa sebopeho sa bolo. Ba bapisa le ho hlophisa dintho, mme ba bue ka ho tshwana le ho fapana.

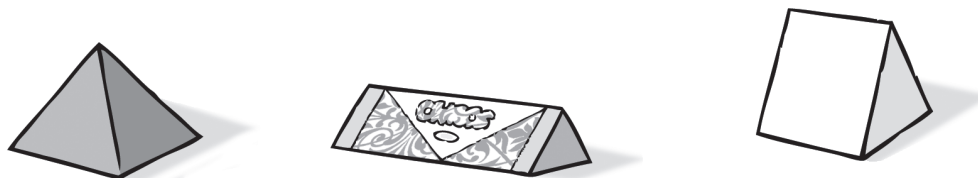
Tsena tsohle di na le difahleho tse sephara.



Tsena tsohle di tla thetaha.



Tsena tsohle di na le dikgutlotharo difahlehong tse ding tsa tsona.



Setshwantsho sa 72 Dintho tsa 3-D

TLELOSARI

mahlakore a 2 (2-D)

sebopeho se na le mahlakore a mabedi: bolelele le bophara (bobatsi)

mahlakore a 3 (3-D)

ntho e nang le mahlakore a mararo: bolelele, bophara (bobatsi) le bophahamo

makgetha

makgetha a sebopeho sa 2-D kapa ntho ya 3-D, mohl. bolelele, bobatsi, bophahamo, mahlakore (difahleho), maphethelo, dihuku



In practice ...

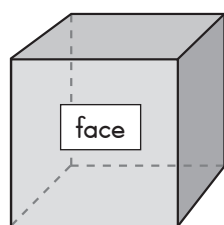


Learners can:

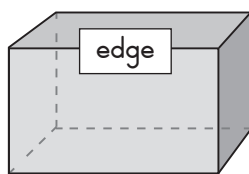
- Play with collections of 3-D objects including blocks, tins, boxes and balls.
- Describe objects. They can choose one object at a time. You can prompt their thinking through questioning, and introduce them to the correct names and properties of each object.
- Sort 3-D objects according to a particular 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.

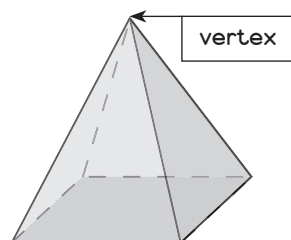
Grade R learners may ask what the name of an object is, e.g. a cube, cylinder or cone. In higher grades learners learn about the 3-D solids shown in Figure 73.



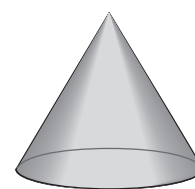
Cube



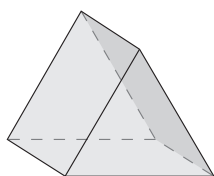
Cuboid



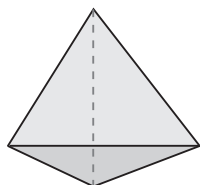
Square-based pyramid



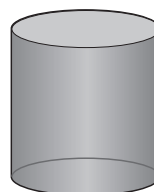
Cone



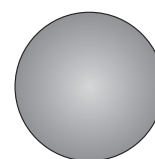
Triangular prism



Triangular-based pyramid



Cylinder



Sphere

Figure 73 3-D solids



Diketsahalong ...

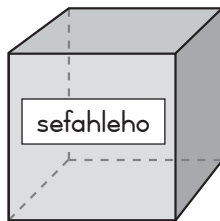


Baithuti ba ka:

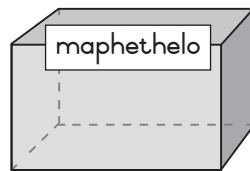
- Bapala ka dipokello tsa dintho tsa 3-D ho kenyeletswa diboloko, makotikoti, mabokoso le dibolo.
- Hlalosa dintho. Ba ka kgetha ntho e le nngwe ka nako. O ka qholotsa menahano ya bona ka ho botsa dipotso mme wa ba tsebisa mabitso a nepahetseng le makgetha a ntho ka nngwe.
- Hlophisa dintho tsa 3-D ho ya ka lekgetha le itseng, jwaloka maphethelo a otlolohileng kapa ho ya ka tse thethehang. Sena se tla dumella baithuti ho tlwaela le ho sibolla makgetha a dintho.
- Hlalosa dintho tsena ka ho sebedisa puo ya kamehla jwaloka sephara, boreledi, motsu. Ha baithuti ba lemoha makgetha a mangata ba ithuta mabitso a tshwanetseng, mohl. maphethelo, huku, bokahodimo kapa botlase, sefahleho. Ho hlophisa diketsahalo le dipuisano mabapi le dintho ke ntho tsa bohlokwa hobane di thusa baithuti ho utlwisisa, ho etsa mohlala, hore le ha tjhupu ya khateboto e le telele e le tshesane mme kotikoti ya senomaphodi e le kgutshwane, bobedi ba tsona ke disilindara.

Baithuti ba lokela ho tataiswa hore ba eellwe hore ke lekgetha la ntho, jwaloka bolelele, bophara kapa bophahamo, eo re shebanang le yona ha re hlophisa e seng mmala, boholo kapa makgetha a mang.

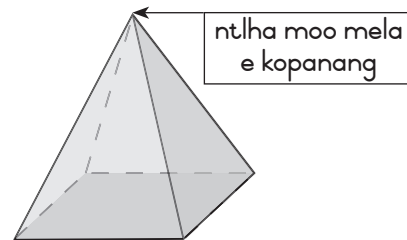
Baithuti ba Kereiti ya R ba ka botsa hore lebitso la ntho e itseng ke eng, mohl. khiubu, silindara kapa khouno. Dikereiting tse ka hodimo baithuti ba ithuta ka dintho tsa 3-D tse bontshitsweng Setshwantshong sa 73.



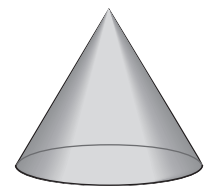
Khiubu



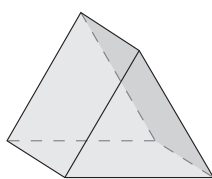
Khiuboite



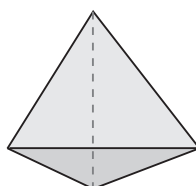
Phiramite e thehilweng ho kgutlonnetsepa



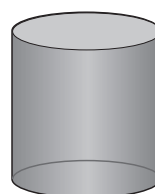
Khouno



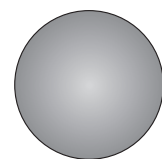
Prism e kgutlotharo



Phiramite e thehilweng ho kgutlotharo



Silindara



Kgidikwe

Setshwantsho sa 73 Dintho tse thata tsa 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

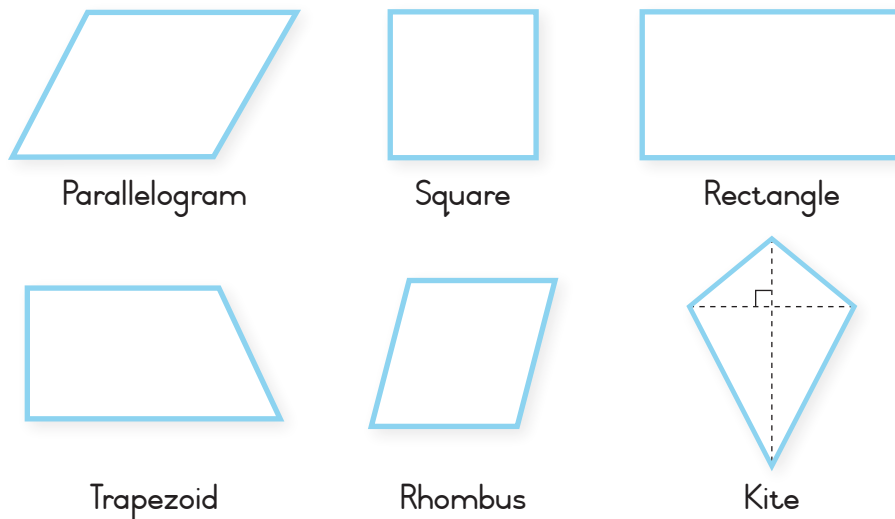


Figure 75 Shapes with four sides

Dibopeho tsa mahlakore a mabedi (2-D)

Kereiting ya R, baithuti ba lemoha, ba hlwaya le ho bolela dibopeho tsa 2-D: didikadikwe, dikgutlotharo, dikgutlonnetsepa le dikgutlonne. Ka hare le ka ntle ho phaposi ya borutelo ba bona dibopeho mme ba ka sibolla makgetha a dibopeho tse na ditshwantshong mme ba batlana le dintho tse 'shebahalang jwaloka' dibopeho, mohl. letshwao la tsela le ka shebahala jwaloka sedikadikwe, galase ya fenstere jwaloka kgutlonnetsepa, lemati jwaloka kgutlonne.



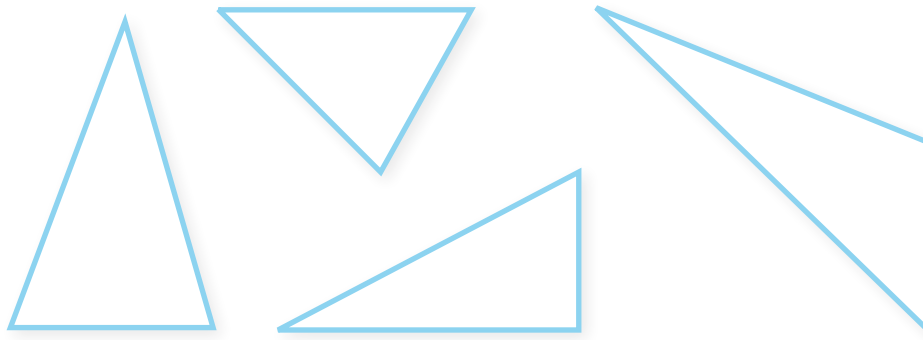
Diketsahalong ...



Baithuti ba ka:

- Sibolla makgetha a dibopeho tsa 2-D ka hare le ka ntle ho phaposi ya borutelo, jwaloka didikadikwe, dikgutlonnetsepa, dikgutlonne le dikgutlotharo.
- Batlana le dintho tse nang le sebopelo sa 'kgutlonnetsepa', ba bolela lehlakore kapa sefahleho sa lebokoso kapa sebopelo sa 'sedikadikwe', ba bolela letshwao la tsela kapa botlase ba kopi.
- Hlalosa dibopeho tsa 2-D tsa boholo bo fapaneng le maemo a fapaneng ditshwantshong.

Baithuti ba hloka ho bona mefuta e fapaneng ya dibopeho tsa 2-D, mohl. dikgutlotharo tse fapaneng (e seng feela tsa mahlakore a lekanang), dikgutlonne tsa boholo bo fapaneng. Sena se thusa baithuti ho ehlwa hore ke dibopeho dife tse nang le dintho tse tshwanang, ho etsa mohlala, hore dikgutlotharo tsohle di na le mahlakore a mararo le dikgutlwana tse tharo empa ha di tshwane hantlentle, le hore dikgutlonne di na le mahlakore a mane ho sa natswe hore di hokae kapa di shebile hokae.



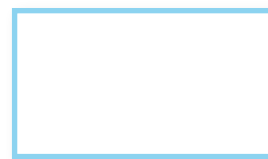
Setshwantsho sa 74 Dibopeho tse nang le mahlakore a mararo



Pharalelokeramo



Kgutlonnetsepa



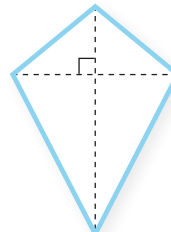
Kgutlonne



Trapezoite



Rombase



Khaete

Setshwantsho sa 75 Dibopeho tse nang le mahlakore a mane

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 baithuti menyetla ya ho sibolla dibopeho tsa 2-D nakong ya diketsahalo tsa papadi ka boikemelo. Etsa hore disebediswa tse fapaneng di be teng – dibopeho tsa polasetiki (diboloko tsa makgetha a fapaneng) le dibopeho tsa khateboto tsa mebala le boholo bo fapaneng – mme ebe o kgothaletsa baithuti ho di sebedisa ho bopa dipaterone, ditshwantsho le dipontsho tse bonolo. Ka nako ya diketsahalo tsena, matitjhere a ka buisana le baithuti ka seo ba se etsang mme a botse dipotso tse kgothatsang tse kang: 'Mpolelle ka paterone eo o e etsang.' 'Eo ke ntlo e ntle, o e entse jwang? Hlalosetsa molekane wa hao mehato eo.'

Ha baithuti ba Kereiti ya R ba qala ho batlisisa le ho hlalosa dibopeho le dintho, hangata ba sebedisa puo ya kamehla e kang sephara, boreledi, motsu. Butlebutle matitjhere a ka ba thusa ho ithuta ho tsemapisa maikutlo meleng ya sebopeho kapa ntho le ho sebedisa mareo a mmetse ho nka sebaka sa a kamehla – mahlakore, kgopame, otlolohile, huku.

Kutlwisiso ya baithuti ya makgetha a dibopeho e a hola ha ba ntse ba elellwa **ho fapana le ho tshwana** pakeng tsa dibopeho. Sena se ka etswa ka ho hlophisa le ho bea ka mananeo diketsahalo esitana le ka diketsahalo tsa ho nyalanya tse kang ho etsa qeto ya hore ebe sebopeho se tla kena hantle phazeleng kapa kahong, kapa ho bapala *Lotto* ya dibopeho.



Setshwantsho sa 76 Ho fapana le ho tshwana ha dibopeho



Diketsahalong ...



Ho tloha ho 3-D ho isa ho 2-D

Tereisa baithuti le dintho tse ding ka phaposeng ya borutelo ho bona le ho buisana ka 'setshwantsho' se hlahellang. Baithuti ba ka qopetsa dintho kahara pente mme ba di hatella hodima pampiri ho etsa kgatiso. Hape ba ka tereisa ho potoloha maphethelo a dintho mme ba bua ka mola le sebopeho seo ba se entseng. Dijana, diboloko tsa ho aha, bokahare ba pampiri ya ntlwana, le disebediswa dife kapa dife tsa ho resaekelwa di ka sebediswa ho bopa ditshwantsho tsa dibopeho ka tsela ena.

Dipapadi tsa dibopeho

Baithuti ba bapala ka bobedi. Moithuti e mong o pata sebopeho kapa ntho kamora hae mme moithuti e mong o botsa dipotso tse mabapi le yona ho fihlela a kgona ho noha hore ke eng. 'Na e sephara? Ebe e na le mahlakore a mararo?'

Matitjhere a ka phephetsa baithuti hore ba etse dibopeho tse ngata tse fapaneng kamoo ba ka kgonang hodima jeoboto.

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?'

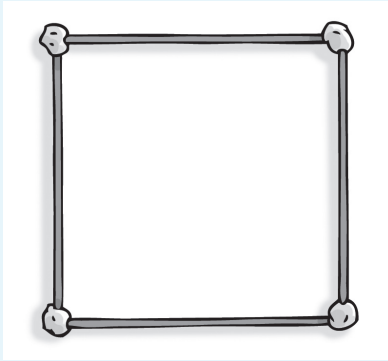


Figure 77 Building shapes

Construct shape pictures

Learners can use attribute blocks to create a picture.

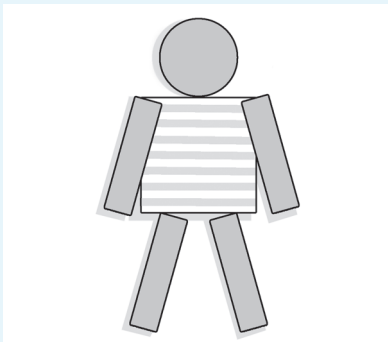


Figure 78 A shape picture

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.



Circle



Oval



Triangle



Square

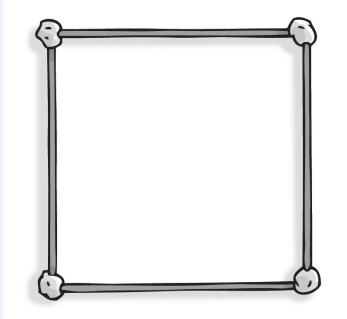


Trapezium

Ho aha le ho heletsa dibopeho

Hang ha baithuti ba kgona ho hlwaya dibopeho tsa 2-D (kgutlonnetsepa, sedikadikwe, kgutlotharo, kgutlonne) le dintho tsa 3-D (mabokoso le dibolo), ba se ba loketse ho aha le ho heletsa dibopeho:

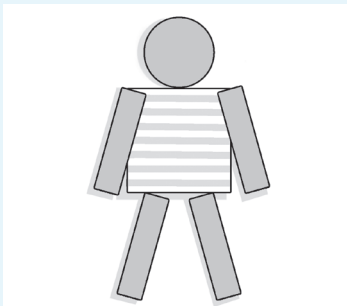
- 👉 Mahlakana, dithupa le dintho tse ding tse kang tseo di ka sebediswa mmoho le hlama ya ho bapala ho etsa dibopeho.
- 👉 Kopa baithuti ho etsa sebopelo le ho bua ka sona. 'Eo ke kgutlonnetsepa. Na o ka e fetolela ho kgutlotharo?'



Setshwantsho sa 77 Dibopeho tsa ho aha

Bopa ditshwantsho tsa dibopeho

Baithuti ba ka sebedisa dibopeho tsa makgetha a fapaneng ho etsa setshwantsho.



Setshwantsho sa 78 Setshwantsho sa sebopelo

Ba ka nna ba kgomaretsa dibopeho tse sehilweng tsa ntshwa pampiring ho etsa dibopeho tse ding kapa ditshwantsho.

Ba ka nna ba pitikisa, ba tsipa kapa ba hatella letsopa la ho bapala ho etsa dibopeho le ho di kopanya ho etsa dibopeho tse ntjha.

Diphetoho

Baithuti ba thellisa, ba phethola le ho fetola dibopeho ha ba ntse ba rarolla mathata a kenyeletsang dibopeho, jwaloka ho nyalanya dibopeho tse ditshwantshong, le ho kopolla dipaterone tsa dibopeho ba sebedisa diboloko tsa makgetha a fapaneng.

Dikereiting tse phahameng baithuti ba tla ithuta letoto la dibopeho tsa 2-D. Baithuti ba Kereiti ya R hangata ba botsa matitjhere le batho ba baholo hore sebopelo se itseng se bitswang mme ditshwantsho tse ka tlase mona di fana ka mohlodi bakeng sa diketsahalo tsena.



Sedikadikwe



Motopo



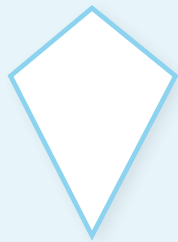
Kgutlotharo



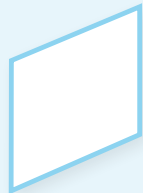
Kgutlonnetsepa



Trapheziamo



Kite



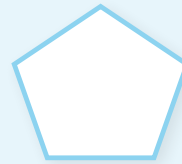
Rhombus



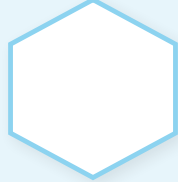
Parallelogram



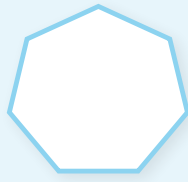
Rectangle



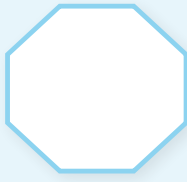
Pentagon



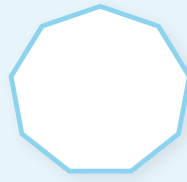
Hexagon



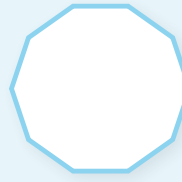
Heptagon



Octagon



Nonagon



Decagon

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.

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.

GLOSSARY

symmetry
when a shape or object can be divided into two equal halves along a central line

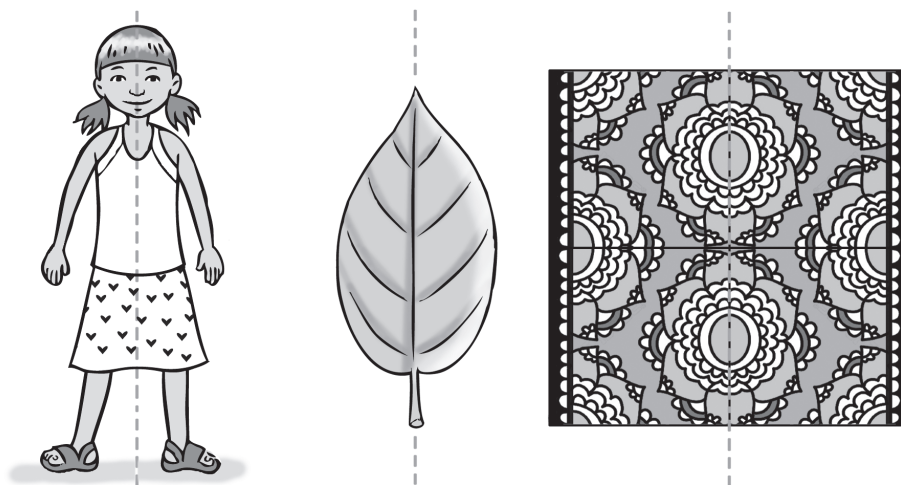
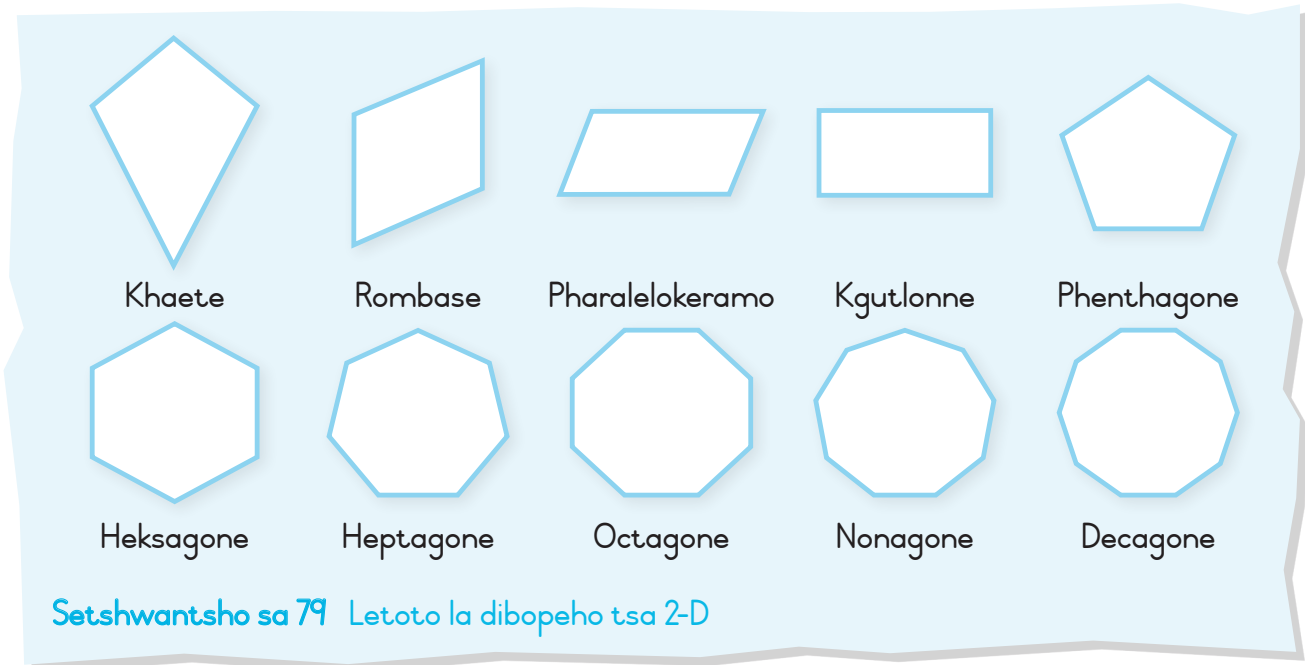


Figure 80 Line symmetry divides the shape into two identical parts.

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.



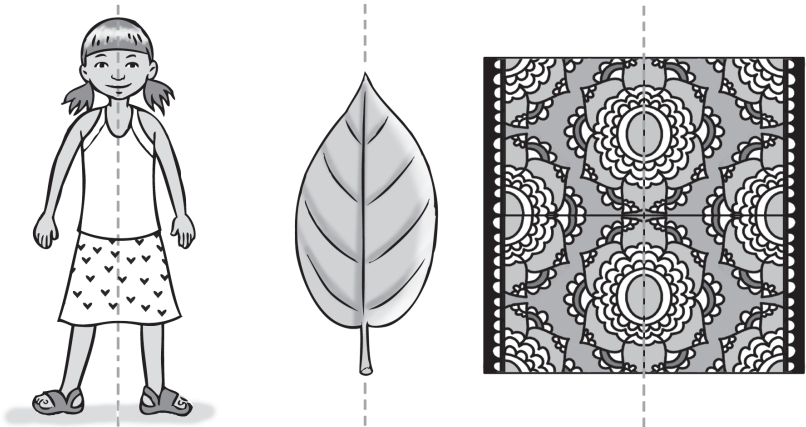
Setshwantsho sa 79 Letoto la dibopeho tsa 2-D

Molahare

Baithuti ba ka lemoha dipaterone tse arotsweng ka molahare hohle moo ba leng, tlhahong, meahong, ditshwantshong tse pentilweng le dinthong. Dilemong tsa bonyane, **molahare** e utlwisiseha ha bonolo jwaloka 'setshwano' kapa 'seipone'. Baithuti ba ka sibolla kgopolo ena ka ho mena le ho seha dibopeho le ditshwantsho ka halofo, kapa ka ho taka setshwantsho halofong e le nngwe ya sekgetjhana sa pampiri ba sebedisa dikerayone tsa mafura, mme ebe ba mena pampiri eo le ho sidila sebaka se kamora motako wa bona le ho bona khopi e tshwanang hantle le seo ba se takileng e hlahella halofong e nngwe ya leqephe.

Dipaterone tse arotsweng ka bohare di ka fumanwa mmeleng ya rona, tlhahong, tikolohong ya meaho le ditshwantshong. Molahare o arola sebopelo ka dikarolo tse pedi tse tshwanang. Mola ona o ka rapama kapa wa theosa.

TLELOSARI
molahare
 ha sebopelo kapa ntho e ka arolwa ka dihalofo tse pedi tse lekanang hodima mola o mahareng



Setshwantsho sa 80 Molahare o arola sebopelo ka dikarolo tse pedi tse tshwanang.

Kereiting ya R, baithuti ba sibolla molahare ka ho bapisa dintho le ditshwantsho. Ba ithuta hore molahare ha o mabapi le 'ho tshwana le' empa e mabapi le ho ba le tshwano, ho etsa mohlala, serurubele se na le mahlakore a arotsweng ka bohare empa letsoho ha le jwalo.

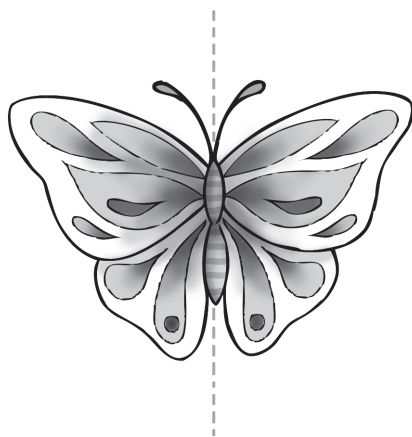


Figure 81 Symmetrical

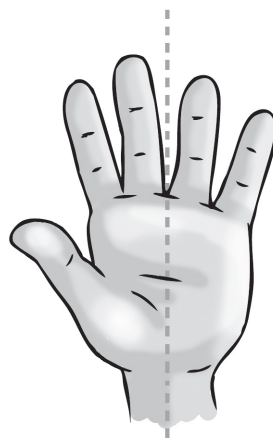


Figure 82 Not symmetrical

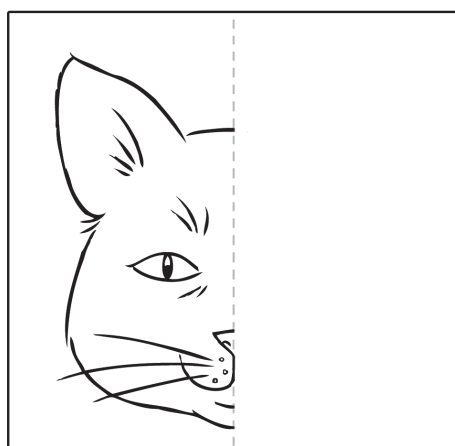
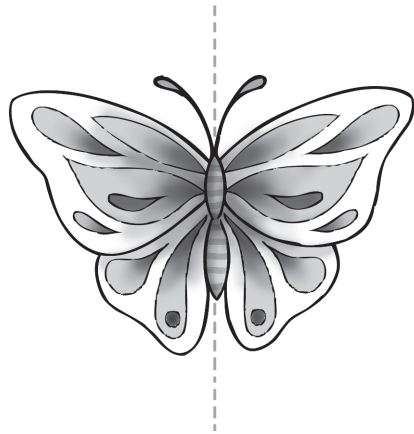


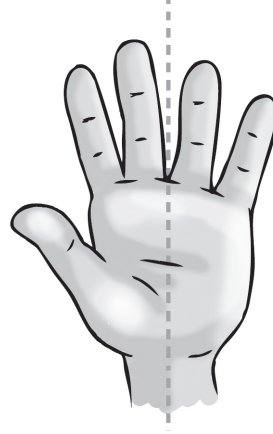
Figure 83 Folded piece of paper with image cut out and copied opposite to show symmetry.

Questions to ask for Space and Shape (Geometry)

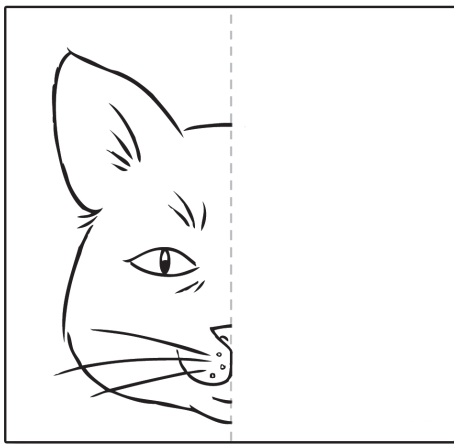
- Where are you standing?
- What is in front of/behind you?
- Can you tell me how to get from ... to ...?
- Can you show me how to move around the box, over the chair and under the table?
- What shape is this?
- How do you know it is a triangle/square/rectangle/circle?
- How many sides does this shape 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?



Setshwantsho sa 81 Ho arolwa ka bohare



Setshwantsho sa 82 Ha e a arolwa ka bohare



Setshwantsho sa 83 Sekgetjhana sa pampiri se mennweng se nang le setshwantsho se ntshitsweng le ho kopelletwa lehlakoreng ho bontsha molahare.

Dipotso tse ka botswang bakeng sa Sebaka le Sebopeho (Jeometri)

- O eme hokae?
- Ke eng e ka pela/kamora hao?
- Na o ka mpoella hore nka tsamaya jwang ho tloha ... ho ya ...?
- Na o ka mpontsha hore ke tsamaise lebokoso lena jwang, ka hodima setulo le ka tlasa tafole?
- Ke sebopeho sefe sena?
- O tseba jwang hore ke kgutlotharo/kgutlonnetsepa/kgutlonne/sedikadikwe?
- Sebopeho sena se na le mahlakore a makae?
- Sebopeho sena se na le dihuku/dikgutlo tse kae?
- O ka mpoella eng ka mahlakore a sebopeho sena?
- O ka mpoella eng ka mola ona?
- Ke eng e tshwanang/fapaneng ka dibopeho tse pedi tsena?
- Hobaneng di lokela ho ba mmoho?

- 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

- Na ho na le ntho eo o e bonang ka phaposing ya borutelo e tshwanang le sebopeho sena?
- Ho ka etsahala eng ha nka phethola sebopeho sena? Ho ka etsahala eng ha nka fetola sebopeho sena ka se shebisa kwana?
- Na o ka sebedisa dibopeho tsena ho etsa mmotlolo wa setshwantsho sela?
- Ke efe ho dintho tsena e ka thetehang/thellang?
- Na o ka bea dintho tsena o di palamisane?
- Na dibopeho tsena di ka lekana mmoho?
- Na o ka fumana ntho e nang le mahlakore a sephara?
- Na o ka fumana ntho e nang le mahlakore a kgopameng?
- Ho na le maphethelo/dihuku/dintlha tse kae lebokosong?
- Ke eng e tshwanang/fapaneng ka mabokoso a mabedi ana?

Tlotlontswe bakeng sa Sebaka le Sebopeho (Jeometri)

Boemo le tshupiso

- kahare, hodima, tlositswe, ka hodima, ka hodimo ho, ka tlasa, ka ntle, kahara, kante ho, hodimo, tlase, ka tlase, pakeng tsa, ka pela, ka mora, pela, qethohile
- haufi, hole, lehlakoreng la, lehlakore, kahare, kante
- haufi, haufinyane
- hole, hojana
- pela
- otlohohile, thinya
- ho potoloha, pela, ho ya ka nqane
- ho, ho tswa ho, ho isa, ho tloha ho
- tse shebaneng
- pele, morao, mahlakoreng
- le letshehadi, le letona

Dibopeho tsa 2-D

- sedikadikwe, kgutlonnetsepa, kgutlonne, kgutlotharo
- mola, lehlakore, maphethelo, huku, ntlha, motsu
- kgopame, otlohohile

Dintho tsa 3-D

- boloko, lebokoso, ka tlase, ka hodimo, mahlakore, sephara
- mela, otlohohile, maphethelo
- huku, motsu, ntlha
- bolo, tjhitja, kgopame

Molahare

- e tswana le
- le letshehadi, le letona
- ka hodimo, tlase

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.

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.

GLOSSARY

measurement

'how much' of something, e.g. height, length, mass, volume, capacity

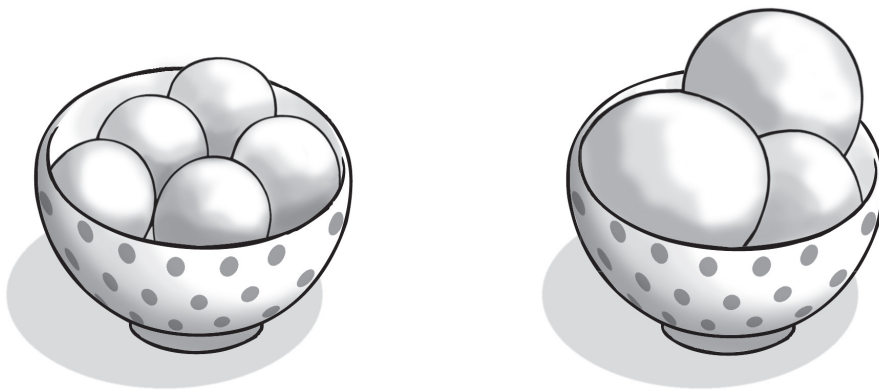


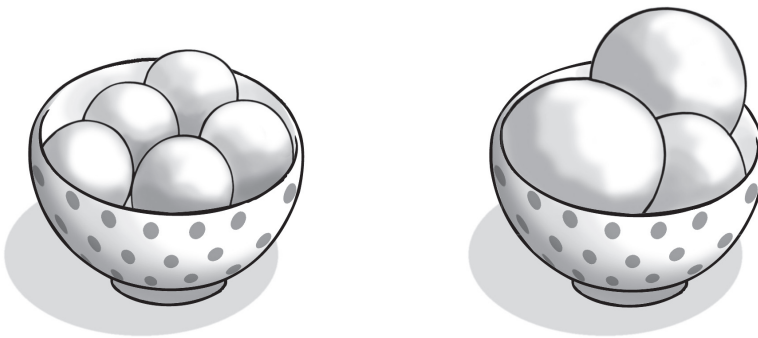
Figure 84. Estimating the amount of ice cream

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.

Mometho

Bana ba nka seabo **momethong** ha ba bapala le ho sibolla maphelong a bona a kamehla. Ba tla Kereiting ya R ba ena le mehopolo ya bona ya ho metha, ho etsa mohlala, hore motho e moholo o 'moholo', hore ntho e itseng e phahame haholo ho ka fihleleha, hore ba hloka dintho tse ngata ho tlatsa lebokoso, hore ho nka nako e telele ho ya lebenkeleng. Ba tla bapisa dipompong tse pedi ho bona hore e kgolo ke efe, ke tora efe ya diboloko e telele ho feta kapa ke lebokoso lefe le boima ho feta ho a mabedi. Kutlwisiso ya mareo ya mefuta e fapaneng ya memetho e hola butlebutle mme e bakwa ke dintho tseo bana ba kopanang le tsona le ho buisana ka tsona letsatsi le letsatsi mmoho le batho ba baholo le metswalle, ho etsa mohlala, ha ba ka kgetha sekotwana se seholo sa bohobe kapa ba bapisa bophahamo kapa ba fumana hore ke mang ya nang le leoto le lenyane ka ho fetisisa kapa ke mang ya ahileng tora e telele ka ho fetisisa. Ba etsa diqeto mabapi le hore ke koloi efe ho tse pedi tsa ho bapala e tlang ho kena ka karatjheng le hore ba tla hloka diboloko tse kae ho etsa hore karatjhe e be kgolwanyane kapa e be nyane. Ba ka nna ba metha ditswakwa bakeng sa ho pheha, ba tshela metsi kapa santa ho tswa jekeng ba sheba hore e tla tlatsa dikopi tse kae, kapa ba bapisa boima ba mokotla wa tswekere le lebokoso la dilamunu.

Mometho le diyuniti tseo re di sebedisang bakeng sa ho metha di mabapi le ho fumana hore ho na le 'ho hokae' ha ntho e itseng. Mometho o tsamaelana le dikarolo tse ding tsa mmetse, tse kang dinomoro, dipaterone, sebopeho le datha. Baithuti ba bala hore ke diyuniti tse kae tse hlokehang ho metha bongata ba dintho tse tshwarehang, jwaloka bophahamo, mothamo, bolelele, boima, kapa bongata bo sa tshwareheng, jwaloka nako, tjhelete kapa motjheso/mohatsela. Ba ka lekanyetsa hore ke efe ya dintho e 'ngata' kapa e 'nyane', ho etsa mohlala, dikgaba tsa aesekerimi ka sejaneng. Ba tla theha dikakanyo tsa bona ho boholo ba sebaka seo aesekerimi e se nkang, eseng ho boima ba dijana kapa lenane la dikgaba tse kgilweng.



Setshwantsho sa 84. Ho lekanyetsa bongata ba aesekerimi

Kereiting ya R, mometho ke ntho e etsehang mme baithuti ba lokela ho etsa diketsahalo tse ngata tsa matsoho tse nang le moeleo ho bona. Ho utlwisisa kgopolo ya mometho, ho etsa mohlala, kamoo ntho e leng 'boima', baithuti ba hloka ho thonaka dintho mme ba bapise boima ba tsona. Mometho o mabapi le ho fumana boholo kapa bongata ba ntho e nngwe ka ho e bapisa le yuniti e sa hlophiswang, tse kang matsoho, maoto, pentshele kapa sekotwana sa kgwele, kapa yuniti e hlophisitsweng ya ho metha, jwaloka sentimitara kapa litara.

TLELOSARI

mometho

'ke ho hokae' ha ntho e itseng, mohl. bophahamo, bolelele, boima, volumo, mothamo

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

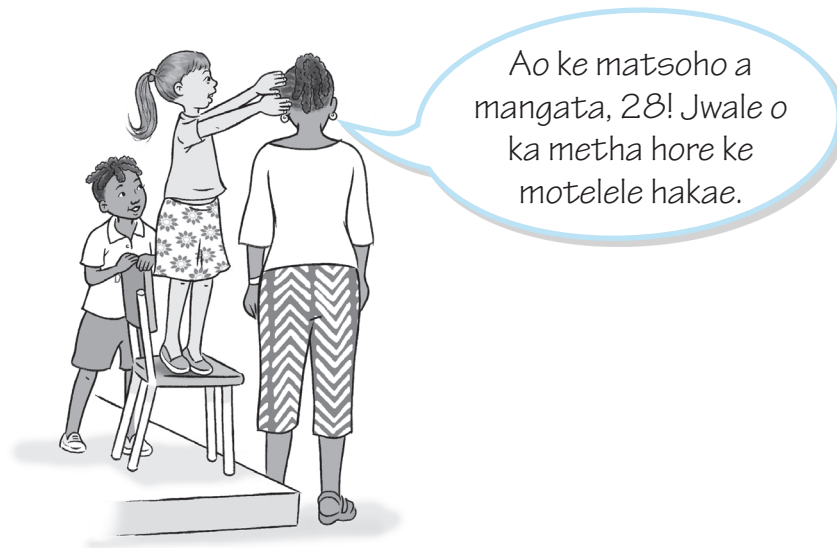
In this way, learners will begin to understand 'big' things aren't just large objects, and that they can look at them in terms of their length, height or weight.

Matitjhere a hloka ho shebella baithuti nakong ya diketsahalo mme ba bue le bona mabapi le mehopolo ya bona. Matitjhere a ka hlahisa tlotlontswe e ntjha ha baithuti ba bapisa, ho etsa mohlala, kamoo dintho di leng telele ka teng. Ha baithuti ba bua kamoo ntho e leng 'kgolo' kapa 'nyane' titjhere a ka bontsha bana tshebediso ya tlotlontswe e nepahetseng ka ho bua mantswa a bona ka tsela e nngwe. Ho etsa mohlala, ha moithuti a re motho e mong o moholo kapa o monyenyanane titjhere o lokela ho mo kgothaletsa hore a bolele hore ke eng mabapi le motho eo e etsang hore a be moholo kapa monyenyanane. Na ebe ke bolelele kapa bophara kapa boima ba motho eo?



Setshwantsho sa 85 Ho sebedisa tlotlontswe ya mmetse

Hang ha baithuti ba entse qeto ya seo ba batlang ho se metha (lekgetha) ba hloka ho etsa qeto ya hore ba tla metha lekgetha le itseng jwang, jwaloka bophahamo.



Setshwantsho sa 86 Ho sebedisa matsoho bakeng sa ho metha bophahamo

Ka tsela ena, baithuti ba tla qala ho utlwisisa hore dintho tse 'kgolo' ha se feela dintho tse tonanahadi, le hore ba ka di sheba ho ya ka bolelele, bophahamo kapa boima ba tsona.



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.



Diketsahalong ...



Hape baithuti ba a kopanya kapa ba a tlosa ha ba rarolla mathata a ho metha a kenyeletsang nomoro, ho etsa mohlala, ha ba:

- bapisa bongata ha ba tshela metsi kapa santa ka hara ditshelo tse fapaneng, ba tla eellwa hore ba hloka dikopi tse 2 ho tlatsa jeke
- bala ho fumana hore ba ka bea dintho tse kae ka lehlakoreng ka leng la sekala sa botsitso ho etsa hore mahlakore a tsitse bobedi, ba tla lemoha hore ba hloka ho eketsa e le nngwe kapa tse mmalwa mme ba bale paloyohle
- aha ditora ka diboloko mme ba eketse, ba tlose le ho bala lenane la diboloko bakeng sa ho etsa hore tora e be telele ho feta kapa e be kgutshwane ho feta.

Ho ntshetsa pele kgopolo ya mometho

Baithuti ba lokela ho ba le menyetla e mengata ya ho rarolla mathata a kenyeletsang mometho mme ba lokela ho ba le letoto la ditshelo tse loketseng tseo ba ka di sebedisang diketsahalong tse sa hlophiswang bakeng sa ho fuputsa le ho iphumanela ditharollo. Baithuti ba hloka diketsahalo tsa matsoho tse kenyeletsang dipapiso ka ho thonaka, ho tshela, ho thetsa le ho bua ka dintho tseo ba kopanang le tsona.



Setshwantsho sa 87 Ditshelo bakeng sa diketsahalo tsa ho metha

Ditsela tse fapaneng tsa ho metha

Papiso e tobileng

Tsepamo ya mometho e ho papiso ya makgetha a ho hong 'ka ho toba'. Ho etsa mohlala, ho metha botelele ba pentshele papisong le pentshele e nngwe kapa ho bapisa bolelele ba baithuti ba babedi ba furallaneng.

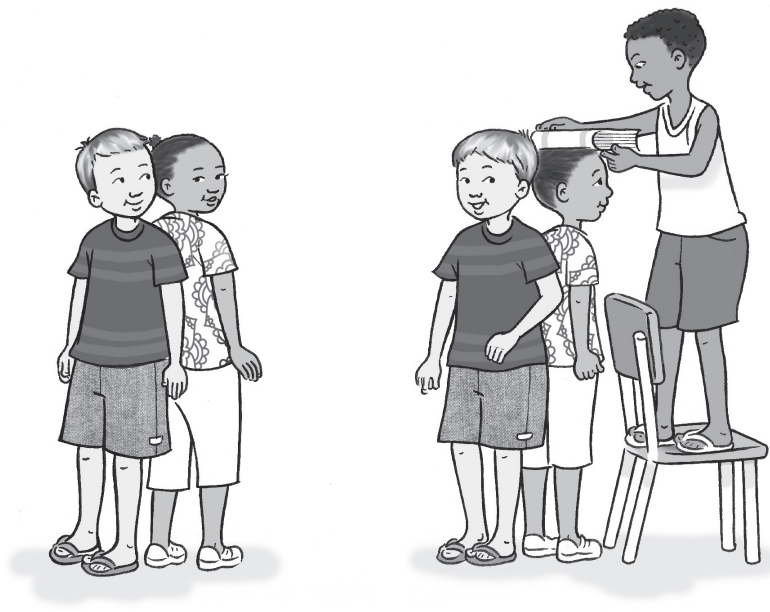


Figure 88 Comparing the height of two learners

'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

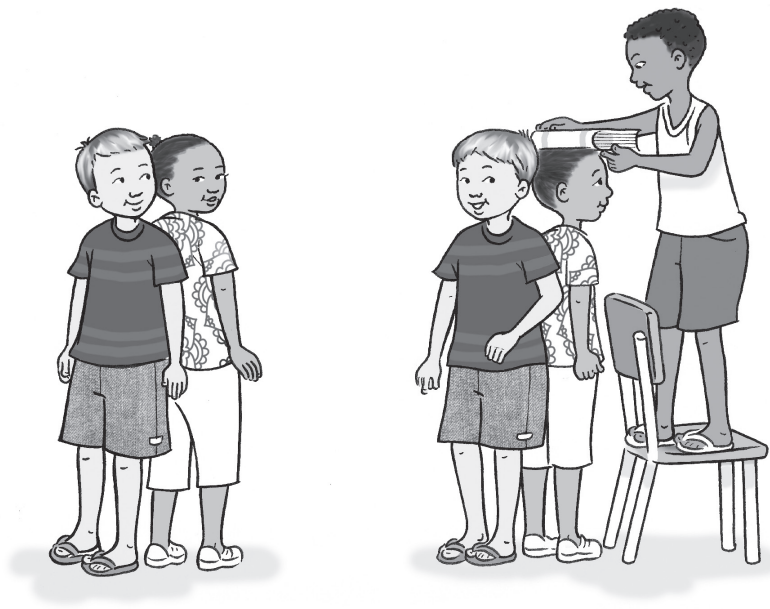
Informal measuring

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



Setshwantsho sa 88 Ho bapisa bolelele ba baithuti ba babedi

'Max o molelele ho Lola.'

'O molelele hakae ho mo feta?'

Dipapiso di ka nna tsa kenyeletsa ho hlophisa:

'Max o molelele ho Lola empa o mokgutshwane ho Elton.'



Setshwantsho sa 89 Telele ka ho fetisisa ho isa ho kgutshwane ka ho fetisisa

Ho metha ho sa hlophiswang

Re metha ka tsela e sa hlophiswang, re sebedisa **diyuniti tse sa hlophiswang** bakeng sa ho metha, ho etsa mohlala, ha re sebedisa botelele ba sephaka ho metha kgwele, kapa re sebedisa maoto a rona ho metha boholo ba moseme.

TLELOSARI

yuniti e sa hlophiswang

yuniti ya ho metha e sebedisang ntho e kang seeta, setshwari sa dipampiri kapa khiubu; hape e ka ba ntho e sa hlophiswang e kang bophara ba letsoho, leoto kapa bolelele ba 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.

Yuniti e hlophisitsweng ya ho metha

Re sebedisa diyuniti tsa ho metha tse kang dimililitara, dilitara, disentimitara, dimitara, digramo, dikilogramo, metsotso le dihora ho bapisa botelele ba ho hong, boima ba ntho e itseng kapa nako e nkuwang ho etsa ho hong. Re sebedisa diyuniti tse hlophisitsweng ho metha ka nepo e phethahetseng.

Kakanyo

Baithuti ba hloka ho ba le bokgoni ba ho akanya nakong ya diketsahalo tsa bona tsa ho metha ho sa hlophiswang, ho etsa mohlala, ba lokela ho akanya hore ba nahana hore ntho e boima hakae pele ba e metha, kapa ba nahana hore ntho e telele hakae ba itshetlehile ka lenane la diboloko tseo ba nahanang hore ba tla di hloka ho e metha, kapa ba nahana hore ho ka ba nka nako e kae ho qeta ho hlwekisa phaposi ya borutelo. Ebe ba sebedisa disebediswa tsa ho metha bakeng sa ho fumana hore dikakanyo tsa bona di ne di nepahetse ho le hokae.



Diketsahalong ...



Baithuti ba qala ho utlwisisa seo mometho o se bolelang le hore ke hobaneng re hloka ho metha. Ba utlwisisa hore:

- ✎ Mometho o kenyeletsa papiso e tobileng le tshebediso ya diyuniti tse sa hlophiswang, tse kang matsoho le maoto, le diyuniti tse ding tse lekanang hantle ka boholo kapa ka botelele jwaloka diboloko, kgwele, mahlakana a ho bala.
- ✎ Yuniti ka nngwe e na le boholo bo fapaneng; ba lemoha hore mometho ka mong o fana ka sephetho se fapaneng.
- ✎ Re sebedisa yuniti e le nngwe e hlophisitsweng ele hore bohle re fumane diphetho tse tshwanang ha re bapisa lekgetha le itseng.

Baithuti ba hloka menyetla e mengata hore ba etse diqeto ka bobona tsa hore ba metha eng le ho e metha jwang. Ba lokela ho bapisa diphetho tsa memetho ya bona mme ba sebedise diyuniti tse fapaneng bakeng sa ho metha dintho tse tshwanang.

Dikereiting tse ka hodimo, ha baithuti ba se ba ena le bokgoni ba ho bapisa le ho lekanyetsa, ba qala ho sebedisa diyuniti tse hlophisitsweng. Baithuti ba bang ba Kereiti ya R ba ka nna ba kopana le disebediswa tsa ho metha lapeng mme tsena ho ka buisanwa ka tsona ka tsela e sa hlophiswang sekolong, ho etsa mohlala:

- ★ dijeke tsa ho metha, dikgaba tsa ho metha – bakeng sa ho metha dimililitara, dilitara
- ★ dirulara, ditheipi tsa ho metha – bakeng sa ho metha disentimitara, dimitara
- ★ dikala – bakeng sa ho metha digramo, dikilogramo
- ★ ditshupanako le ditleloko – ho metha metsotso, dihora.

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.

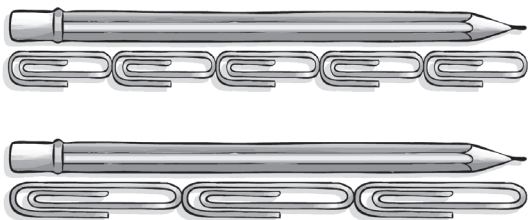


Figure 90 Measuring length with two different units of measurement

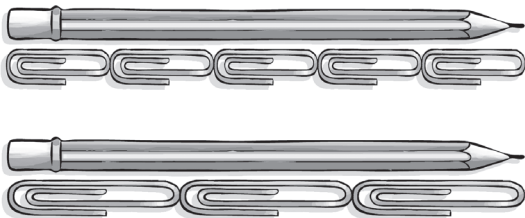
Nako

Dintlha tse tsebahalang tsa mometho – bohole, mothamo, boima – di ka hlahiswa ho baithuti ka diketso le diketsahalo tse tlwaelehileng, empa nako ke kgopolo e sa tshwareheng e thata bakeng sa baithuti ho e utlwisisa. Sena ekaba ka lebaka la hore batho ba baholo ha ba sebedise puo ya nako ka nepo ka dinako tsohle, mme ba sebedisa dipolelo tsa kamehla tse kang, 'Ke tla fihla moo ka sebakanyana,' mme ebe ba nka nako e telele ho fihla. Hape, bana ba banyenyane ba phela 'motsotsong wa jwale' mme kahoo ho hopola diketsahalo tse fetileng kapa ho noha diketsahalo tse tlang ke ntho e boima ho bona. Baithuti ba hloka ho utlwisisa kamoo nako e fetang ka teng maphelong a bona kahoo matitjhere a lokela ho amanya nako le dintho tse etsahalang maphelong a baithuti letsatsi le letsatsi le diketsahalo tseo ba di tlwaetseng.

- ★ Ho bea diketsahalo ka tatelano: Baithuti ba hloka ho utlwisisa puo ya nako ele hore ba kgone ho bua ka tatelano eo diketsahalo di etsahalang ka yona. Sebedisa ditlwaelo tsa letsatsi le letsatsi le dipale ho bua ka tatelano ya diketsahalo motshehare le tatelano ya diketso ho qetella mosebetsi o itseng – 'se ileng sa etsahala kamora moo/pele ho moo'.
- ★ Diyuniti tsa nako: Bapisa diyuniti tse fapaneng tsa nako: nako ya sekolo ke hoseng, nako ya ho ya hae ke mantsiboya, nako ya ho robala ke bosiu, ho 'robala' habedi pele ho letsatsi la hao la tlhaho. Etsa tjhate ya maemo a lehodimo, ebang le khalendara ya kgwedi le kgwedi mme le rekote diketsahalo tsa bohlokwa ho lenaneketsahalo la ditshwantsho. Buisanang ka 'maobane, kajeno, hosane'. Butlebutle baithuti ba qala ho utlwisisa kamoo nako e fetohang matsatsi a beke, dikgwedi tsa selemo le dihla.
- ★ Dikgahla tsa lebelo: Mathang le ho beisa ka ntle. Sebedisang dikathara tsa polasetiki ho etsa diporo tsa ho theta dimabole le dirempe bakeng sa ho kgannela dikoloi ho nyolosa le ho theosa. Tantshetsang mmino o yang butle le o potlakang. Botsa baithuti hore na ba nka nako e kae ho borosola meno a bona kapa ho potoloha sekolo. Buang ka metsamao le diketsahalo tse potlakang tsa kapele le tse lenama.

Bolelele

Kereiting ya R, tsepamo e ho kakanyo, ho metha, ho bapisa le ho hlahlamanya botelele le bohole. Baithuti ba hloka ho utlwisisa hore bakeng sa ho fumana botelele ba ntho e itseng ba hloka ho e metha ho tloha lehlakoreng le leng ho ya ho le leng. Ho etsa mohlala, ba ka metha le ho bapisa botelele ba pentshele ba sebedisa ditlilipi tsa pampiri jwaloka diyuniti tse sa hlophiswang. Setshwantsho se ka tlase mona se bontsha kamoo pentshele e le nngwe e ka methwang ho sebediswa diyuniti tse pedi tse fapaneng tsa ho metha. Setshwantshong sa pele ho na le ditlilipi tse hlano mme setshwantshong sa bobedi ho na le ditlilipi tse tharo tse kgolwanyane.



Setshwantsho sa 90 Ho metha bolelele ka diyuniti tse pedi tse fapaneng tsa ho metha

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.

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

mass
how heavy something is

GLOSSARY

capacity
the maximum or greatest amount that something (such as a bucket or a box, or a stadium) can hold

Baithuti hape ba ka metha ho tloha hodimo ho ya tlase ho fumana botelele ba ntho e itseng, mohl. ho fumana hore baithuti ba ka tlelaseng ba balelele hakae. Jwale o ka ba hlophisa ho ya ka tatelano ya ho tloha ho e molelele ka ho fetisisa ho ya ho e mokgutshwane ka ho fetisisa.

- ★ Papiso e tobileng: Fumana dintho tse telele ho feta/kgutshwane ho feta ... Hlophisa dintho ho ya ka botelele le bophahamo. Buisanang le ho hlalosa hore ke hobaneng ha dintho di hlophisitswe ka tsela e itseng.
- ★ Makgetha: Buisanang ka botelele, bophahamo kapa bophara bo lokelang ho methwa.
- ★ Diyuniti tse sa hlophiswang: Sebedisa matsoho, mahlaku, dipentshele ho metha le ho bapisa dintho.
- ★ Diyuniti tse sa hlophiswang tse tshwanang: Sebedisa diyuniti tse lekanang ka boholo, ho etsa mohlala, diboloko. Di behe mabapa le bolelele bohle ba ntho e methwang. Hamorao sebedisa boloko bo le bong mme o bo tsamaisa jwalo, o ntse o bala hore bo tsamaya makgetlo a makae.

Boima

Kereiting ya R tsepamo e ho kakanyo, ho metha boima, ho bapisa le ho hlahlamanya dintho ho ya kamoo di leng boima kapa bobebe ka teng. Ho nka nako bakeng sa baithuti ho utlwisisa taba ya hore boholo le boima ke dintho tse fapaneng. Baithuti ba hloka ho sibolla dintho tse nyane tse boima, dintho tse kgolo tse boima le dintho tse kgolo tse bobebe mme ba di bapise. Matitjhere a lokela ho thusa baithuti ho tsepamisa maikutlo ho boima ba ntho, eseng boholo ba yona.

- ★ Papiso e tobileng: Tshwara ntho mme o lekanyetse **boima** ba yona. Fumana dintho tse leng boima ho feta kapa tse leng bobebe ho feta ntho eo.
- ★ Makgetha: Buisanang ka sebopeho, boholo le boima ba ntho e methwang.
- ★ Diyuniti tse sa hlophiswang: Sebedisa sekala sa botsitso ho bapisa boima ba dintho. Bea ntho e lokelang ho kalwa lehlakoreng le le leng la sekala. Eketsa ntho e nngwe (kapa tse fetang bonngwe) ka lehlakoreng le leng la sekala ho etsa hore se tsitse.
- ★ Diyuniti tse sa hlophiswang tse tshwanang: Sebedisa yuniti ya boholo bo lekanang, ho etsa mohlala, boloko bo bohlohadi ho bapisa boima ba dintho o sebedisa sekala sa botsitso.

Mothamo

Mothamo wa ntho ke bongata boo ntho e ka bo tshelang, ho etsa mohlala, botlolo ya litara e le nngwe ya lebeso e ka tshela litara e le nngwe ya mokedikedi. Kereiting ya R, tsepamo e ho kakanyo, ho metha, ho bapisa le ho bea ditshelo ka tatelano ho ya ka bongata boo di ka bo tshelang. Matitjhere a lokela ho fana ka menyetla e mengata bakeng sa baithuti ho sebedisa mareo a lephaka le tletse, mohl. ha ba tlatsa kapa ba tsholla ditshelo ka metsi kapa santa nakong ya seneke. Baithuti ba ka tlatsa ditshelo ka dintho tse fapaneng mme ba bua ka mothamo wa tsona: 'Re hloka dikopi tse kae tsa metsi ho tlatsa jeke ena? Hobaneng re hloka dibotlolo tsa lebeso tse mmalwa tse tshetseng metsi ho tlatsa jeke ena?'

TLELOSARI

boima

kamoo ntho e leng boima ka teng

TLELOSARI

mothamo

bongata bo hodimodimo kapa bo bohlohadi boo ntho e itseng (jwaloka nkgo kapa lebokoso, kapa setadiamo) e ka bo tshwarang

- ★ 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

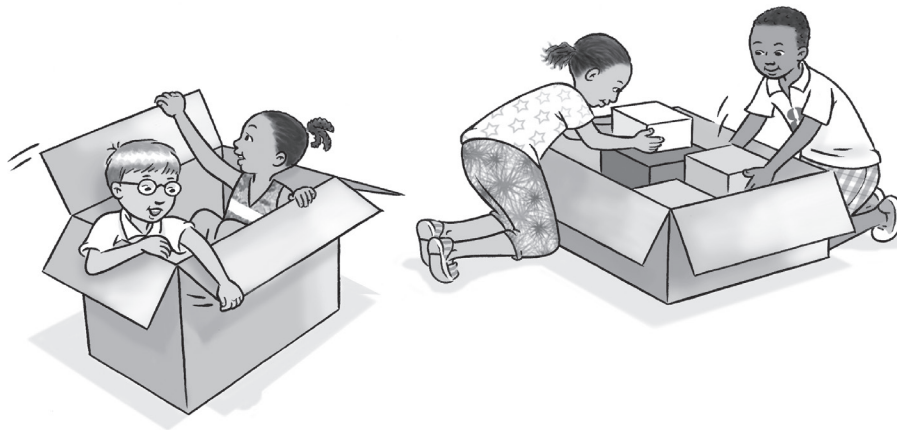


Figure 9I Exploring capacity and volume

- ★ 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?'

- ★ Papiso e tobileng: Tlatsa, tsholla le ho tshela pakeng tsa ditshelo tse tshwanang o sebedisa metsi kapa santa ho fumana hore di ka tshela bongata bo lekanang na. Pele, baithuti ba ka nna ba lekanyetsa hore setshelo se selelele ho tse pedi se tla tshela metsi a mangata ho feta.
- ★ Diyuniti tse sa hlophiswang: Etsa patlisiso ya hore ditshelo tsa fapaneng tsa santa di ka tlatswa ke metsi a makae. Bapisa hore ke sefe se tshelang a 'mangata' kapa a 'manyane'. Tlatsa setshelo se le seng mme ebe o tshela metsi kapa santa eo ka hara se seng ho bona hore ebe se tla phophoma kapa a tla siya sebaka bakeng sa a mang. Tlatsa ditshelo tse telele le tse batsi mme o di behe ka tatelano ho tloha ho e tshelang metsi a mangata ho isa ho e tshelang a manyane.
- ★ Diyuniti tse sa hlophiswang tse tshwanang: Bala lenane la dikgaba kapa dikopi tse tlatsang ditshelo tsa boholo bo le bong le bo fapaneng.

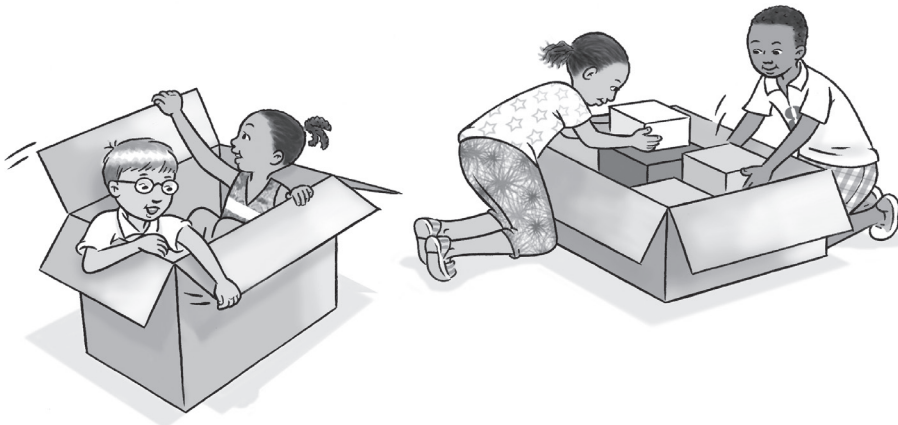
Volumo

Volumo e mabapi le bongata ba ntho e itseng boo setshelo se bo jereng, jwaloka metsi, santa, raese kapa tswekere. Kereiting ya R, tsepamo ya mometho e lokela ho ba ho bongata boo setshelo se ka bo tshelang (mothamo) ho ena le boholo ba sebaka seo setshelo se nang le sona (volumo). Volumo e ka fetoha ho ya ka bongata ba dikahare ka nako efe kapa efe, empa mothamo o dula o tshwana, ho etsa mohlala, mothamo wa jeke ke litara e le 1 ho sa natswe hore tshetse bokae ka nako eo. Lena ke lereo le thata bakeng sa baithuti ba Kereiti ya R hore ba le utlwisise.

TLELOSARI

volumo

bongata boo ntho e itseng e bo tshetseng kapa sebaka seo dikahare di se nkileng



Setshwantsho sa 91 Ho sibolla mothamo le volumo

- ★ Papiso e tobileng: Baithuti ba etsa dipatlisiso ka ditshelo tse dibopeho di fapaneng ho fumana hore setshelo se boholo bo bokae le bongata boo ba nahanang hore se ka bo tshela.
- ★ Diyuniti tse sa hlophiswang: Phaphallisa ditshelo tse kang mabokoso a dijo tsa motshehare a polasetiki, ditshelo tsa polasetiki tsa pinabatha, dijeke tsa lebeso ka hara metsi. Di tlatsa ka dibadi kapa lehlabathe mme le buisane ka se etsahalang. Botsa dipotso tse kang: 'Na di ntse di phaphalletse? Ho etsahalang ka metsi a ka hara emere? Na a phophoma?'

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

Dipotso tse ka botswang mabapi le Mometho

- O ile wa etsang ha o tsoha?
- Kamora moo o ile wa etsang?
- Ho ile ha etsahala eng kamora moo?
- Re ile ra etsa eng pele ho ...?
- Re tla etsa eng kamora ...?
- Ke efe e lebelo ka ho fetisisa/lenama ka ho fetisisa?
- ... e letsatsing lefe? ... e tla ba letsatsing lefe?
- Ke efe e telele ho feta/e kgutshwane ho feta?
- Ke efe e boima/bobebe ho feta?
- ... e tshwara dikopi/dikgaba/dibotlolo tse kae?
- Ke setshelo sefe se ka tshelang ho feta setshelo sena?
- Ke setshelo sa mang se nang le mothamo o moholo ka ho fetisisa?
O tseba jwang?
- Ke nyorilwe haholo. Nka sebedisa kopi efe? Hobaneng?

Tlotlontswe bakeng sa Mometho

- nyalanya, hlophisa, bapisa, beha ka tatelano
- metha, tshwana/lekana le

Nako

- pele, kamora, pela, jwale, nakong eo
- ka potlako, butle
- motsheare, bosiu, hoseng, mantsiboya
- kajeno, maobane, hosane
- beke, matsatsi a beke
- kgwedi, dikgwedi tsa selemo
- khalendara
- selemo, mohla
- hwetla, mariha, selemo, lehlabula, dihla

Bolelele

- e telele, kgutshwane, batsi/sephara, lelele hakae
- lelele ho feta, telele ho feta, kgutshwane ho feta, batsi/sephara ho feta
- kgutshwane ka ho fetisisa ho isa ho telele ka ho fetisisa, telele ka ho fetisisa ho isa ho kgutshwane ka ho fetisisa

Boima

- boima, boima ho feta, boima ho fetisisa
- bobebe, bobebe ho feta, bobebe ho fetisisa

Mothamo

- ngata/ka hodimo, nyane/ka tlase, lephaka, tletse

Volume

- kgolo, mothangwana, kgolohadi, nyane, nyane haholo

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.

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.

GLOSSARY

classify

the process of grouping similar things in a systematic way, e.g. separating clothes by winter and summer

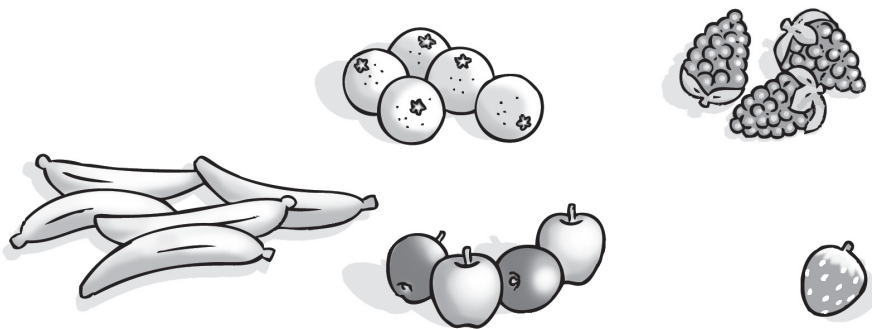


Figure 92 Collecting, sorting and organising into groups

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.

Ho Sebetsa ka Datha

Bana ba banyenyane ba botsa dipotso ha ba ntse ba leka ho fumana moelelo wa lefatshe leo ba phelang ho lona. Matitjhere a hloka ho kgothaletsa baithuti ba Kereiti ya R ho botsa dipotso le ho batla ditlhalosetso. Dipotso tse di ka sebediswa ele motheo bakeng sa ho bokella tlhahisoleseding (datha) le ho fumana dintlha mabapi le dintho le diketsahalo.

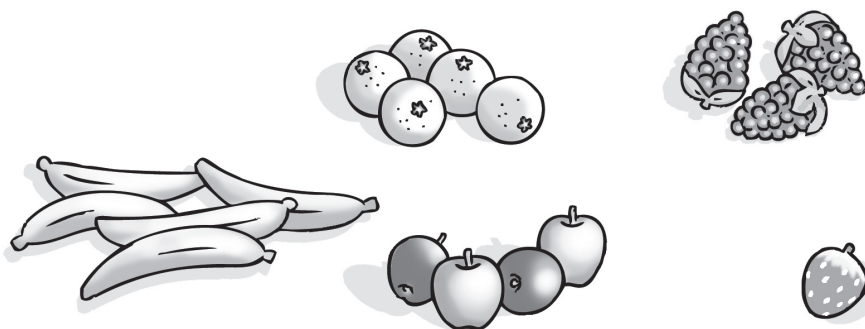
Ho hlophisa le ho beha ka dihlopha

Baithuti ba dula ba hlophisa le **ho beha** dintho **ka dihlopha** moo ba leng teng ka ditsela tse fapaneng. Ba beha dintho ka dihlopha tsa mebala e fapaneng le boholo bo fapaneng, ba paka le ho pakolla dintho lapeng le sekolong, ba di hlophisa ka diqubu tsa dibopeho le ditshebediso tse fapaneng, ho etsa mohlala:

- ★ ho hlophisa le ho nyalanya dihlotshwana tsa dintho: dikausu, dieta, dijana, dikopi
- ★ ho pakela dintho: makotikoti, mabokoso, dibotlolo, dibadi
- ★ ho hlophisa dibadi le dibapadiswa ho ya ka makgetha: mmala, boholo, mofuta
- ★ nako ya ho hlwekisa/phutha: dibuka, diboloko, diphazele, dipapadi, dikerayone.

Dintho di ka hlophiswa le ho behwa ka dihlopha ho ya ka tsela tseo di tshwanang ka tsona, jwaloka mmala. Baithuti ha ba eketsa ho tseba makgetha a dintho tse jwaloka dijalo le diphoofolo, le ho tshwana le ho fapana ha tsona, ba eketsa bokgoni ba ho di beha ka dihlopha tse fapaneng.

Ho Sebetsa ka Datha ho kenyeletsa ho bokella, ho hlophisa, ho lokisa, ho emela le ho hlalosa tlhahisoleseding bakeng sa ho rarolla bothata kapa ho araba potso, mohl., 'Ke baithuti ba bakae ba ratang diapole?' Hore ba tle ba arabe potso ena, baithuti ba tla hloka ho bokella tlhahisoleseding, ba e hlophise le ho e beha ka tsela e tla ba nolofaletsa ho utlwisa tlhahisoleding hore ba tsebe ho araba potso.



TLELOSARI

ho beha ka dihlopha

mokgwatshebetso wa ho beha dintho tse tshwanang ka dihlopha ka tsela e itseng, mohl. ho arala diaparo tsa mariha ho tsa lehlabula

Setshwantsho sa 92 Ho bokella, ho hlophisa le ho beha dintho ka dihlopha

Ho Sebetsa ka Datha ho ka tsamaelana le dikarolo tse ding tsa ho ithuta, ho etsa mohlala, ho fumana lesedi mabapi le:

- ★ tikoloho eo re phelang ho yona, ka ho sheba le ho rekota maemo a lehodimo letsatsi le leng le le leng kapa ho bokella mefuta e fapaneng ya mahlaku
- ★ dintho tseo motho a di ratang, jwaloka mebala eo a e ratisang
- ★ dijo tse nang le phepo e ntle, jwaloka ditholwana le meroho.

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.

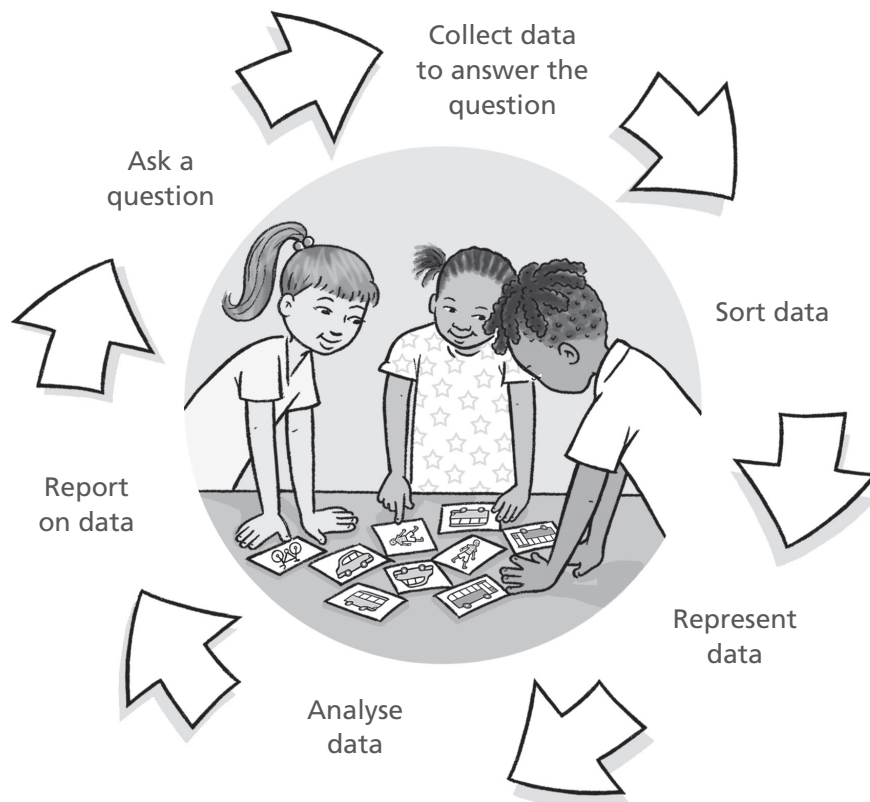


Figure 93 The Data Handling cycle

Ho hlwaya makgetha

Qalong, baithuti ba hlophisa le ho hlopha dintho ho ya ka lekgetha le le leng, le kang mmala, boholo kapa sebopeho. Butlebutle ba ka fana ka mabaka a hore ke hobaneng ha ba hlophisitse dintho ka tsela e itseng. Hape ba ka nahana ka ditsela tse ding tsa ho hlophisa dintho tsona tseo, ho ya ka lekgetha le fapaneng. Ha baithuti ba ntse ba sibolla le ho bua ka mekgwa eo ba bokellang, ba lokisang le ho hlophisa 'dintho' tse ba potileng, ba qala ho beha dintho ka dihlopha ho ya ka makgetha a fetang bonngwe, jwaloka mmala le sebopeho sa dintho.



Diketsahalong ...



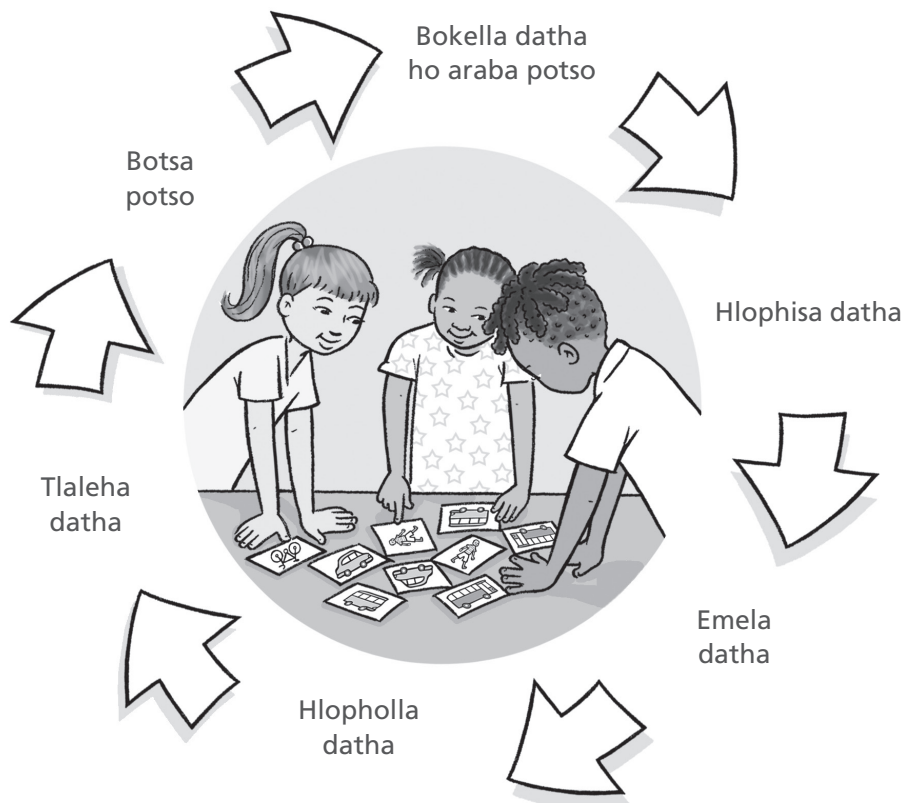
Titjhare a ka kopa baithuti ho hlophisa pokello ya dibopeho tse mebala e fapaneng:

- Fumana dibopeho tsohle tse tala.
- Fumana dikgutlonnetsepa tsohle.
- Fumana dikgutlonnetsepa tse tala.

Ho hlophisa ka makgetha a mabedi ho batla ho le boima bakeng sa baithuti hobane ba lokela ho utlwisisa ka ho sheba phapang pakeng tsa dihlopha tse tharo. Tse pedi tsa dihlopha di na le lekgetha le le leng feela ha sehlopha sa boraro se ena le makgetha a etsang hore se tshwanelehe dihlopheng ka bobedi.

Saekele ya ho Sebetsa ka Datha

Hangata batho ba bua ka mokgwatshebetso wa ho Sebetsa ka Datha ka ho o bitsa saekele hobane diketsahalo tse etsahalang moo di phetaphetwa ka tatelano e tshwanang bakeng sa potso ka nngwe e ntjha e arajwang.



Setshwantsho sa 93 Saekele ya Ho Sebetsa ka Datha

- 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

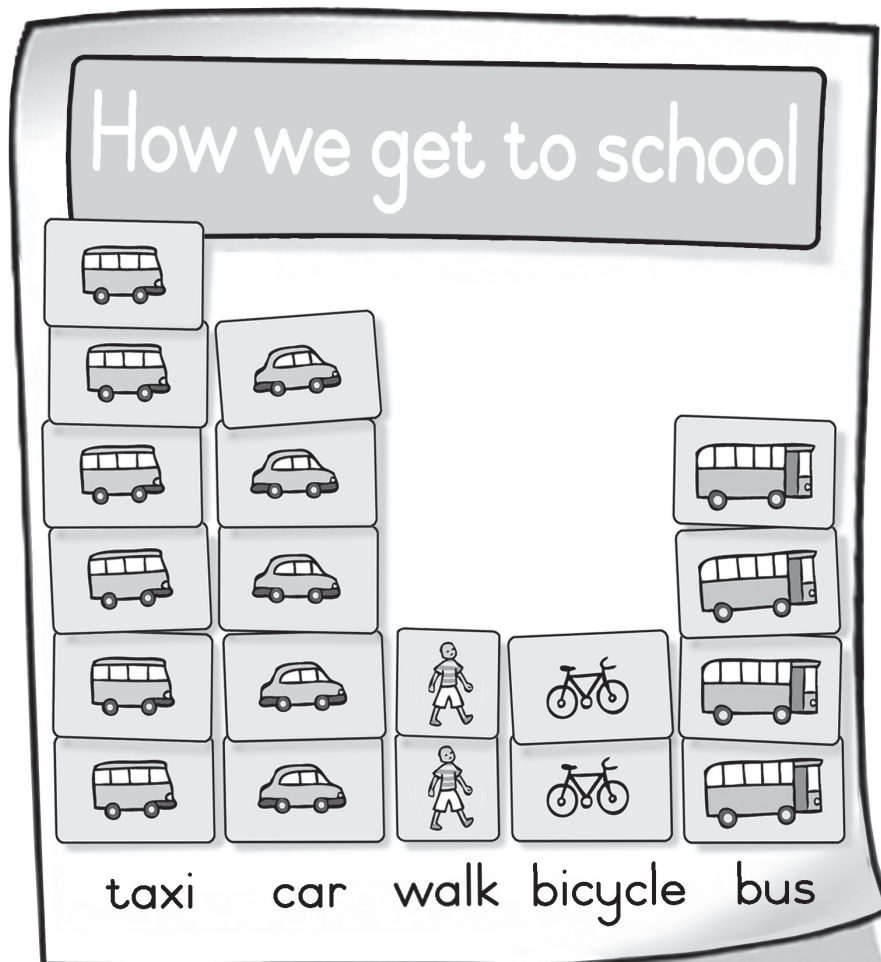


Figure 94. A pictograph

- 1. Botsa potso:** Baithuti ba etsa qeto ya hore ba batla ho fumana dintlha mabapi le eng, mohl. 'Ebe ke baithuti ba bakae ba tlang sekolong ka bese mme ke ba bakae ba tlang ka dikoloi?' Kgwele e hokanyang datha mmoho ke lebaka la ho bokella datha kapa tlhahisoleseding e itseng. Sena se bolela hore datha e bokelletsweng kapa dihlopha tse entsweng ka tlhophiso di lokela ho thusa ho araba dipotso tseo baithuti ba entseng qeto ya ho fumana dikarabo tsa tsona.
- 2. Bokella datha:** Baithuti ba etsa qeto ya kamoo ba batlang ho bokella datha ho ya ka potso kapa bothata, mohl. ka ho botsa baithuti ba bang hore ba tla sekolong jwang mme ebe ba taka setshwantsho bakeng sa karabo ka nngwe.
- 3. Hlophisa datha:** Baithuti ba lokisa le ho hlophisa datha ka dihlopha ho ya ka makgetha. Bakeng sa ho araba dipotso le ho etsa diqeto tsa kamoo ba tla bontsha datha eo ba e bokeletseng, diqeto di lokela ho etswa mabapi le kamoo dintho di lokelang ho hlophiswa.
- 4. Ho emela datha:** Baithuti ba sibolla ditsela tse fapaneng tsa ho bontsha kapa ho hlahisa tlhahisoleseding eo ba e bokelletsweng, mohl. ka ho bea dintho tsa nnete hodima mmata kapa ka ho etsa **dikerafo tsa ditshwantsho**.
- 5. Hlopholla datha:** Baithuti ba hlalosa le ho bapisa datha e bontshitsweng, mohl. ke mokgwa ofe o sebediswang haholo ho feta kapa hanyane ho feta wa ho tla sekolong.

TLELOSARI

kerafo ya ditshwantsho

tsela ya ho emela datha ka tshebediso ya ditshwantsho



Setshwantsho sa 94. Kerafo ya ditshwantsho

- 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. Tlaleho mabapi le datha:** Baithuti ba araba potso e neng e botsitswe pele, 'Ebe ke baithuti ba bakae ba tlang sekolong ka bese mme ke ba bakae ba tlang ka dikoloi?' Ba kgona ho bona hore baithuti ba bane ba tla sekolong ka bese mme baithuti ba bahlano ba tla sekolong ka dikoloi. Hape ba ka bapisa tlhahisoleseding e nngwe e kang ke baithuti ba bakae ba tlang sekolong ka mekgwa e meng mme ke mekgwa ofe wa dipalangwang o sebediswang haholo kapa hanyane.

Dipotso tse ka botswang bakeng sa ho Sebetsa ka Datha

- Ke sehlopha sefe se nang le tse ngata ho fetisisa/mmalwa ho fetisisa? Na o ka tseba le ha o sa di bala?
- Ke sehlopha sefe se nang le tse ngata/mmalwa?
- O nahana hore karabo e tla ba eng?
- Re ka fumana karabo jwang?
- Hobaneng o behile dintho tse na mmoho?
- Na o ka hlophisa dintho tse na ka tsela e nngwe?
- Na tse na di lokela ho ba mona?
- Na dilamunu kapa dipanana ke ditholwana tse ratwang ka ho fetisisa ke batho?
- Ke matsatsi a makae a neng a: tjhesa, le moya, a na pula, ...?
- Ho ka etsahalang ha ...?

Tlotlontswe bakeng sa ho Sebetsa ka Datha

- nyalanya, hlophisa, bapisa
- tshwana, fapane, ke ya, ha se ya
- ho feta, mmalwa ho, lekana/tshwana le
- ka nako tsohle, ka dinako tse ding, le kgale
- mola, kholomo
- mohlomong, kgoneha, nnete

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

Tlelosari

- amana** kamoo dintho le mehopollo di hokahanang ka teng
- boima** kamoo ntho e leng boima ka teng
- bokenadipakeng** ketsahalo ya kopanelo moo motho ya tsebang haholo kapa ya nang le bokgoni bo seng bo tswetse pele a tataisang ba bang ho ithuta ntho e ntjha
- bokgoni ba kutlwisiso ka dikutlo** ho sebedisa dikutlo tsa hao bakeng sa ho bokella tlhahisoleseding mabapi le tikoloho ya hao, ho etsa mohlala: ho bona, ho utlwa, ho thetsa, ho nkgella, le ho latswa
- dielemente** dintho, metsamao kapa diketsahalo pateroneng
- diphapang bathong** batho ba fapaneng ba nang le diphapang tse fapaneng, ho etsa mohlala, boitsebo, botho, bokgoni, ditabatabelo le moo ba tswang
- ditshebediso** ditsela tse fapaneng tsa ho sebedisa mareo a mmetse le bokgoni, mohl. ho lekola tjhelete e kgutlileng ha o reka lebenkeleng, ho bala tjhelete ya ho lefella tekese, kapa ho arola pakana ya matokomane pakeng tsa metswalle e meraro
- emela** ho sebedisa dintho, matshwao kapa diketso ho emela mohopollo kapa monahano o itseng
- ho akanya** bokgoni ba kutlwisiso ba ho elellwa hanghang paloyohle ya dintho tse pokellong ntle le ho di bala
- ho bala dinomoro** ho bala dintho bakeng sa ho fumana hore 'di kae' (e tsejwa hape e le ho balla diphetho)
- ho bala ka modumo** ho balla hodimo, o bitsa dinomoro ka tatelano e nepahetseng (e tsejwa hape e le ho bala ka molomo le ho bala ka morethetho)
- ho bala ka molomo** ho balla hodimo, o bitsa dinomoro ka tatelano e nepahetseng (e tsejwa hape e le ho bala ka modumo le ho bala ka morethetho)
- ho bala ka morethetho** ho balla hodimo, o bitsa dinomoro ka tatelano e nepahetseng (e tsejwa hape e le ho bala ka modumo le ho bala ka molomo)
- ho balla diphetho** ho bala dintho bakeng sa ho fumana hore 'di kae' (e tsejwa hape e le ho bala dinomoro)
- ho bapisa** ho batlana le ditshwano le diphapano pakeng tsa dintho tse pedi kapa ho feta, mohl. 'tsena ke diphoofole tse pedi empa e nngwe ya tsona e bolou mme e nngwe e kgubedu'. Ho bapisa ho mabapi le ho fumana kamano pakeng tsa dintho ho shebilwe makgetha a itseng. Bokgoni bona bo lebisa ho tsebo ya ho hlophisa dintho ho ya ka manane.
- ho beha ka dihlopha** mokgwatshebetso wa ho beha dintho tse tshwanang ka dihlopha ka tsela e itseng, mohl. ho arola diaparo tsa mariha ho tsa lehlabula
- ho beha ka tatelano** ho beha moleng dintho tse tharo kapa ho feta kapa diketsahalo ka tatelano, mohl. tatelano ya diketsahalo tsa letsatsi le letsatsi ka phaposing ya borutelo, ketsahalo ya letsatsi le letsatsi ya hoseng ya baithuti ('ha ke qeta ho phaphama ke theoha betheng, ke hlatswa sefahleho, ke je dijo tsa hoseng ...') kapa diketsahalo tsa paleng
- ho beha mabaka** monahano o tshetsang mohopollo kapa polelo e itseng
- ho hlophisa** ho fumana dintho tse tshwanang, kapa tse tsamaelanang, le ho di hlophisa ho ya ka makgetha a itseng. Pele hlophisa ho ya ka lekgetha le le leng, jwaloka mmala, mohl. 'dibopeho tsohle tse tala'. Jwale di hlophise ho ya ka makgetha a mabedi jwaloka mmala le boholo, mohl. 'dibopeho tsohle tse nyane tse tala'.
- hokahana** buisana le batho ba bang; etsa diketsahalo mmoho le batho ba bang

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

ho nyalanya ho hlwaya makgetha a tshwanang dinthong tse pedi kapa ho feta, mohl. dintho tsohle tse tshela. Ho nyalanya ke bokgoni ba bohlokwa bakeng sa ho ithuta neeletsano pakeng tsa dintho tse pedi.

ho sheba ho sebedisa dikutlo tsa rona ho fumana lesedi mabapi le dintho, diketsahalo le maikutlo a batho. Re hloka ho batlana le ho bokella tlhahisoleseding mabapi le lefatshe, mohl. ho sheba le ho mamela ka hloko dintho tse etsahalang moo re phelang.

jeometri ntlha e itseng ya mmetse e sebetsanang le dikarolo, mometho le dikamano tsa dintlha, mela le dikgutlwana tsa dibopeho sebakeng

ka hloohong mohopolo, monahano kapa maikutlo

kenyeletso ketso ya ho netefatsa hore bana bohle, ho sa natswe hore ba fapane ho le hokae, ba kenyeletswa diketsahalong tsohle tsa ka phaposeng ya borutelo

kerafo ya ditshwantsho tsela ya ho emela datha ka tshebediso ya ditshwantsho

kgopolo mohopolo kapa monahano. Ka mantswa a mang, ha o tshwarehe. Dikgopolo tsa mmetse di kenyeletsa nomoro, ho bala dintho, sebaka, ho kopanya le ho tlosa.

lekgetha sebopelo kapa popeho e kgethang ho hong, ho etsa mohlala, mmala kapa sebopelo

mahlakore a 2 (2-D) sebopelo se na le mahlakore a mabedi: bolelele le bophara (bobatsi)

mahlakore a 3 (3-D) ntho e nang le mahlakore a mararo: bolelele, bophara (bobatsi) le bophahamo

makgetha makgetha a sebopelo sa 2-D kapa ntho ya 3-D, mohl. bolelele, bobatsi, bophahamo, mahlakore (difahleho), maphethelo, dihuku

matshwao dintho tse emelang ntho e itseng, jwaloka letshwao la nomoro, lepetjo kapa letshwao la tsela

molahare ha sebopelo kapa ntho e ka arolwa ka dihalofo tse pedi tse lekanang hodima mola o mahareng

mometho 'ke ho hokae' ha ntho e itseng, mohl., bophahamo, bolelele, boima, mothamo

mothamo bongata bo hodimodimo kapa bo bohlohadi boo ntho e itseng (jwaloka nkgo kapa lebokoso, kapa setadiamo) e ka bo tshwarang

noha ho bolela kapa ho lekanya se tlang ho etsahala nakong e tlang

ntlhatheo molawana wa kakaretso o amohelwang o nepahetse

paterone tatelano e tiwaelehileng ya dintho, metsamao kapa diketsahalo tse phetaphetwang ka tsela e ehlwehang

tatelano tsela e itseng eo ka yona dintho, metsamao kapa diketsahalo di salanang morao

tekanyetso e tswelang tekanyetso e fanang ka tlhahisoleseding ha moithuti a ntse a ithuta mme e etsahala le ho lekanya kgatelopele ya moithuti

tjhebo kamoo bohole kapa botebo bo amang tjhebeho ya dintho

tlwaetso kamoo dintho di bewang papisong le tse ding

tobile hantlentle, nepane

tsebo ya pele seo baithuti ba se tsebang ho tloha morao le seo ba seng ba kgona ho se etsa

tswelopele kgolong tatelano eo ka yona bokgoni le dikgopolo di ahellanang hodimo

volumo bongata boo ntho e itseng e bo tshetseng kapa sebaka seo dikahare di se nkileng

yuniti e sa hlophiswang yuniti ya ho metha e sebedisang ntho e kang seeta, setshwari sa dipampiri kapa khiubu; hape e ka ba ntho e sa hlophiswang e kang bophara ba letsoho, leoto kapa bolelele ba mmele

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