



MOPHATO

3

**BUKA YA
MORUTABANA**

Platinum

Dipalo

Platinum Dipalo Mophato wa 3 Buka ya Morutabana

Maskew Miller Learning
10 Freedom Way, Milnerton, Cape Town, 7441

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Ditokelo tsotlhe di sireleditswe. Ga go karolo ya kgatiso e, e e ka boelediwang, ya bokwadi wa mo mofuteng o o ka tlhagiswang gape ka ona, kgotsa ya gaswa mo sebopegong. Ga go tsewe sengwe kgotsa ka mokgwa o o rileng (eleketeroniki, ka motšhine, ka kgatiso ka isa ka mokgwa o mongwe o o sa dumeletsegeng) ntle le gore go bonwe tumelano e e kwaadimo e e gantshe ya mong wa ditshiamelo tse di sireleditsweng tsa bokwadi pele.

Fa o batla go reboelwa tetla ya go ka gatisa lekgetlo le lengwe gape kgotsa go dirisa karolo nngwe le nngwe ya buka eno, o kopiwa gore o ikgolaganye le Setaledi tse se rebolelanang ka Ditshwanelo le Tetla mo go 021 532 6000 kgotsa ka go romela imeili mo go rightsgranting@mml.co.za. Go begela tshenyo ya ditshwanelo tsa mokwadi, tse tsewee romela imeili go copyright@mml.co.za.

Kgatiso ya 1 ka 2025

ISBN 978-1-779-83431-7
ePDF 978-1-834-98750-7

Mophasalatsi Thandi Kgosana
Morulaganyimogolo Khangela
E rulagantswe ke Christine de la Rega
Mothalo wa bokwadi ka MML Visual Design
Botaki jwa bokwadi ka MML Visual Design
Mothalo wa bukane ka MML Visual Design
Botaki ka MML Visual Design
Thulaganyo ya mokwalo ka STRAIVE le Lizette Watkiss
E gatisitswe ka MML Visual Design

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O Amogetswe: Morutabana yo o rategang

O amogetswe mo bukeng ya Dipalo ya Mophato 3. Kharikhulamo ya Dipalo ya Mophato wa 3 e rulagantswe ka dikgweditharo di le nne, nngwe le nngwe ya tsone e tsaya dibeke di le lesome. Ditlhogo di diretswe go thusa barutwana go aga kitso, bokgoni, le dikgopolo go itshwarelela sentle mo Mophato wa 3. Ditirwana di tlhamilwe go tsamaisana le ditlhokele le dikgatlhego tsa barutwana ba gago.

Letsatsi le lengwe le le lengwe fa o tsena mo phaposiborutelong jwa gago, ga o tsene fela mo lefelong le le tlatseng di deseke le dibuka. O tsena mo lefelong leo go bopiwang isagwe ya batho gone le mo go simololwang maitemogelo a masha. O na le matla a a seng kana ka sepe a go tlhotlheletsa, go kaela le go nonotsha baetedin, ba rona ba kamoso, batlhami le badiradiphetogo ba rona. Fa o dira seno ka lorato, ga e kitla e nna kang fela, o tla bo o jala dipeo tsa bopelonomi, bopelokgale, go tlotla batho le moya wa Ubuntu mo dipelong tsa bana ba gago.

Re a itse gore ga se ka metlha go leng bonolo. Dikgwetlho tsa go nna morutabana, segolobane kw dikolong tse di senang ditirelo tse di lekaneng, ka dinako tse dingwe di ka dira gore o ikutlwe o felele go nna. Le fa go ntse jalo, kgwetlho nngwe le nngwe e o lebanang le yona e go naya tshono ya go diphelelanganyo ya mmatota. O bontsha barutwana ba gago gore ba ka kgona go dira sengwe le sengwe le gore go tsefatswe gore ba kgone go fitlhelela dilo tse dikgolo mo botshelong. Ke gone ka moo mokgwa wa rona wa go tsefatswa o tlleng go go thusa. E re ka re o tlhamile re akantse ka CAPS, re tlile go tlhoma mogopolo mo go ruteng ka kaelo akaretsang bana botlhe le go dira gore ngwana mongwe le mongwe a ikutlwe e le karolo ya se se diragalang tsa rona. Ditshwantsho, dikgang le dithuto tse di tla bong di sekasekiwa di tlile go akaretsa maemo a rona a a farologaneng, mme seno se tla thusa morutwana mongwe le mongwe gore a ikutlwe e le karolo ya se se diragalang mo phaposiborutelong.

Ga re a go lebala. Boitekanelo jwa gago bo botlhokwa thata jaaka re lebeletse gore barutwana ba gago ba atlege. Re akareleditse di dirisiwa tse o ka di dirisang ka bopelonomi, go nna o nne o tlhotlheletsegile ebile o itekanetse, ka gonne re a itse gore fa o ikutlwa sentle barutwana ba gago le bone ba tla atlega. Fa o itumetse, seno ga se tlhotlheletse fela tsela e o rutang ka yona gape se se diragalang e e molemo le barutwana ba gago mme ba tla ikaega ka wena go bona tsholofelo le go tlhotlhelela mo botshelong.

Fa Aforika Borwa e tswelletse go dira gore Basic Education Law Amendments Act (BELA) e nne molao ka 2024, maitlhommo a rona a go dira gore thulaganyo ya nna e nne e e lekalekaneng le e akaretsang botlhe a gola le go feta. Seabe se o tlleng go nna le sona se se tshomang ano e tlile go nna se segolo tota, mme go tlhaloganya CAPS le BELA go tla dira gore phaposiborutelong jwa gago e nne lefelo le mo go lona barutwana ba gago ba baakanyediwang go atlega.

Ke wena yo o tlleng go thusa go nna le diphetogo tse di molemo mme seabe sa gago mo phaposiborutelong e tlile go nna se se diragalang thata. Fa o ntse o ruta, itse gore ga o kaele barutwana ba gago fela; o bopela metse ya rona, naga ya rona le le tshelela rona isagwe e e molemo. Re lebogela sengwe le sengwe se o se dirang!

Molaetsa ka Bakwadi

Morutabana

O fano ka gonne o ineitse mo pitsong e e tlotlegang ya borutabana. Seabe sa gago se bothokwa mo go bopeng isago ya bana. Le fa gantsi tiro ya gago e sa fiwe serodumo se se rileng, e bothokwa thata mo go tliseng phetogo mo lefatsheng. O tlhotlheletsa ditsamaiso tsa puso, o tlhotlheletsa baeteledipele ba dikakanyo, e bile o na le tshusumetso mo lkonoming ya isago. O puladikgoro ya botho, bopelonomi, le kutlwelobothoko mo kokomaneng e e latelang. Re lebogela seabe sa gago mo go ageng sešwa setšhaba sa rona sa lefatshe lotlhe; seabe le boleng teng jwa gago ke tlhoko.

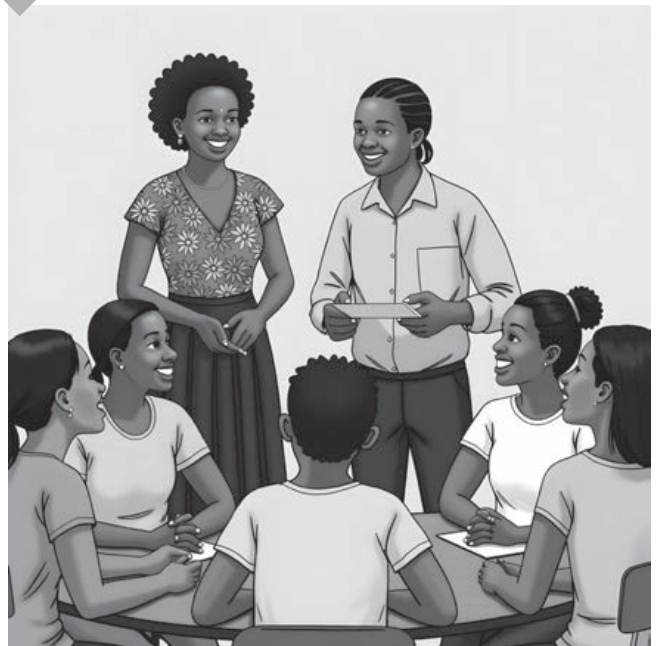
Le fa go ntse jalo, borutabana bo na le go tla ka dikgwetlho tse di sulafatsang. Go go tshela ba mo go tlo, re tsenyeleditse didirisiwa tse o ka ithusang ka tsona gore o nne o ema malala a laotswe. E go tlo o nne Morutabana yo o itumetseng ka gore bokgoni ba gago, le botsalano jwa gago le barutwana, bo laolwe ka go tlo bo bontle ba gago.

Dikatlanegiso tse di fo tlase di dirilwe ke barutabana ba dipalo ba nnete lefatshe le bopelona. Ba lekile mefuta e e fetotseng diphaposiborutelo go nna mafelo ao ritibetseng a a siametseng mo tuta bana.

Gololesega go dirisa se o tla bonang se tsamaelana le wena.

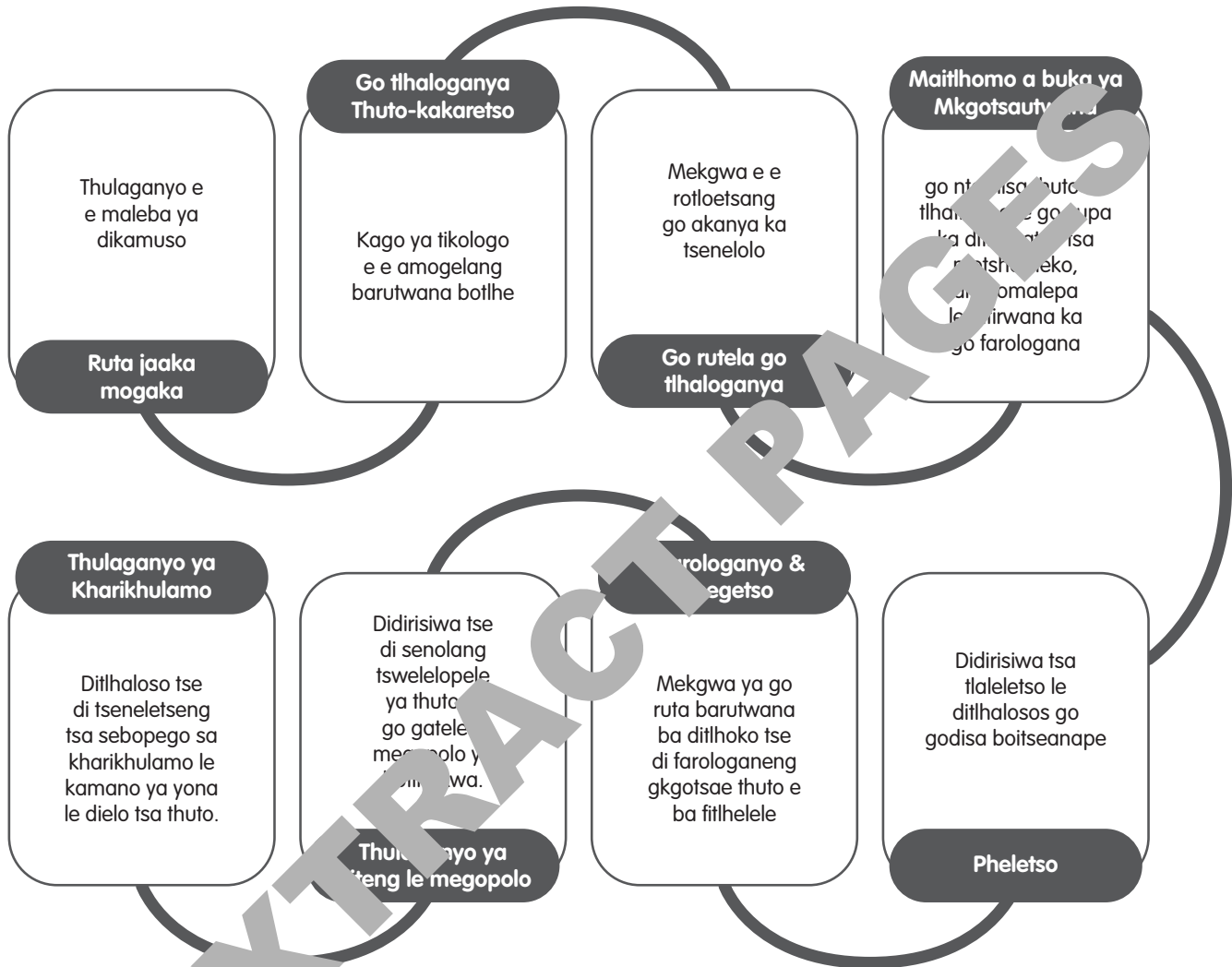
Ka ditebogo,

Bakwadi



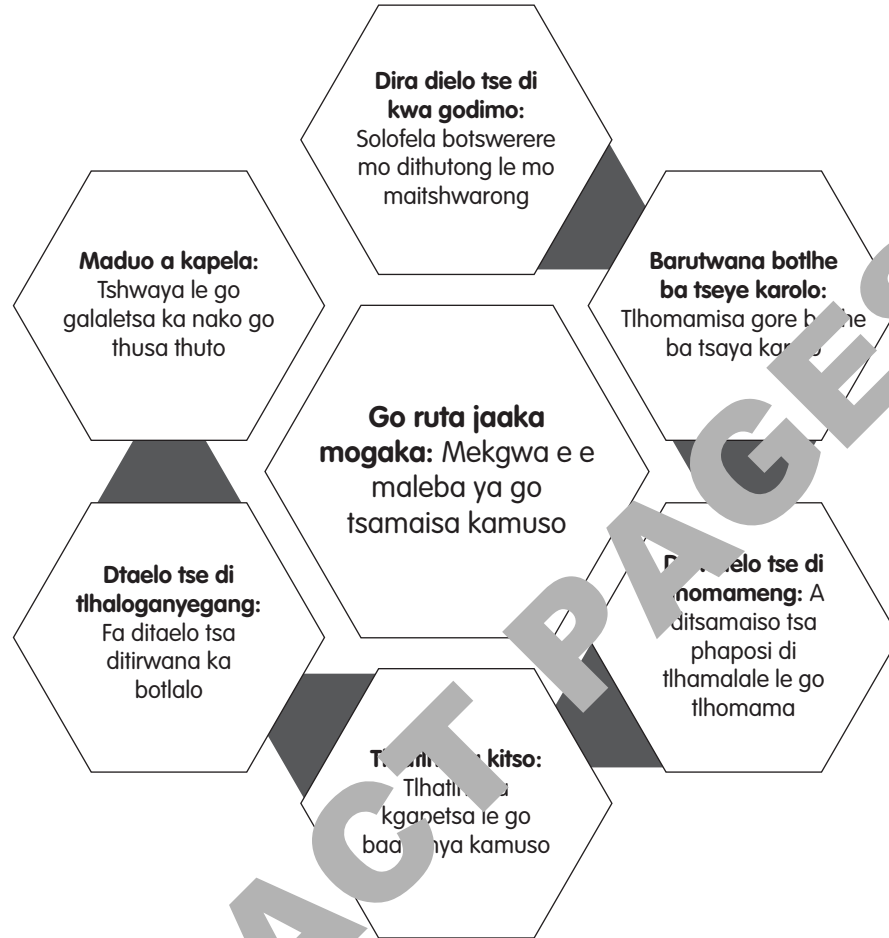
Go dirisa dibuka tse ka bokgabane

O amogetswe mo kaeding ya barutabana ba mephato ya motheo, sedirisiwa sa bokgabane go supa tsela mo morutabaneng wa mephato 1, 2, le 3. Kaedi e, e agilwe go lebilwe loeto la gago la go ruta, go go fa lesedi la nnete le didirisiwa tse di tlaletsang mekgwa ya go ruta e e tla fatlhosang barutwana le go ba neela maitemogelo.



Ka jalo, kaedi e re amogetse go akanya le go tswelela ka kgolo le itshekatsheko, e rotloetsa barutabana go tokafatsa bokgoni jwa bona go ruta ka tisanommogo. E gwetlha barutabana go dirisa dintlha le didirisiwa tse di neetsweng go tokafatsa bokgoni jwa go ruta le go godisa maitemogelo a go ithuta a a matlafatsang barutwana go fatlhoga mo dithutong le mo botshelong.

Ruta jaaka mogaka!



Go tlhatlhanya go tliša le gogo

Mo dipakeng tsa botshelo le boitekanelo, go tlhatlhanya e ka nna seikokotlelo ka dinako tsa mangomo. Go tlhatlhanya ka go hema o goga mowa ka tselo e bonolo, mme e na le maduo a a tlotlheletsang boitshwaro jo bontle le go tokafatsa go akanya. Fa o tlhomamisa mogopolo mo go hemeng ka iketlo, wena le barutwana ba gago le ka fokotsa kgatelelo ya maikutlo, la ritibatsa megopolo la nna le kagiso, mme la iketla la bo la nna le boitekanelo.

Mokgwa wa go tlhatlhanya

Simolola go tliša lefelo le le phuthulolang mmele go nna, e ka nna mo ditilong kgotsa kwa ntle.

Hemang ka iketlo: goga mowa mme o o ntsho ka dinko metsotswana e le mene, o bo o hema ka iketlo o ntsho mowa ka molomo metsotswana e le robedi.

Jaanong goga mowa ka boleele le ka iketlo gore mmele o lokologe ka botlalo. Fa o dira jalo, o bo o tshameka mmino o o iketlileng o o tlišang go ritibala ga maikutlo.

Metsotso e le metlhamo go ya go e le lesome fela ya mokgwa ono o ka ntshwafatsa mogopolo wa gago mme ya ritibatsa tlhaloganyo letsatsi lotlhe.

Go Tlhaloganya Thuto-kakaretso

Maikaelelo magolo a kakaretso mo thutong ke go aga tikologo e morutabana mongwe le mongwe a tla iponang jaaka motho yo o nang le boleng, a tlotliwa le go tshegediwa:

Mefuta ya kakaretso le mekgwa ya go e diragatsa (20 metsotso)

Kakaretso ya (setso): Tlotla le go akaretsa ditso tse di farologaneng mo kharikhulamong le mo Phaposiborutelotlo.

Kakaretso ya loago: Go rotloetsa dikamano le tirisanommmogo ya barutwana ba ditso tse di farologaneng.

Kakaretso ya Phitlhelelo: Go netefatsa gore barutwana ba ba nang-le-bogole ba fitlhelela ditlhoko tsa barutwana mo dikagong le didirisiwa tsa thuto tse di ba siametseng.

Kakaretso ya Puo: Ruta ka ditementsi go akaretsa le go tshegetsisa barutwana ba dipuo tse di farologaneng mo phaposiborutelotlo.

Mekgwa ya tiragatso:

Kgolo ya boitseanape: Go katisiwa barutabana mo mekgweng ya go ruta ka kakaretso go lemoga barutwana ba ditlhoko tse di farologaneng.

Tirisanommmogo le Tshegetsano: Dira kgolagano le ba lelapa, morafe go ditlhopa tse tsehegetsano ya morafe go itebaganya le ditlhoko tsa barutwana ka botlalo.

Kago ya Pholisi le Kharikhulamo: Tsenyeletsa dintlha tsa thuto ya kakaretso mo kagong ya dipholisi le ditshetlana tsa kharikhulamo go godisa kakaretso ya setso.

Tlathlho ka dinako tsotlhe: Tlathlho ka dinako tsotlhe go apetsa mme o tokana le ditsela tsa kakaretso go netefatsa tekatekano ya dipoelothuto ya barutwana botlhe.

Buka ya Morutwana e simolola ka go anela kgang: Tlathlho ka dinako tsotlhe se setlhogo se se tla rutwange rutiwang. Sekao, bolela kgang ka ga ditlhopho tse pedi tsa diphologo tse di kopaneng go bopa setlhopho se segolo.

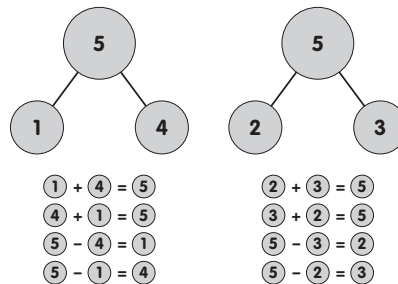
Sekao sa kgang: "Mo sekgweng, go na le digwagwa di le 3 mme digwagwa tse dingwe di le 2 di kopana le tsona. Go na le digwagwa di le kae jaanang?"

Tirwana ya Pono le Matsogo (20 metsotso):

Dirisa ditshwarwa:

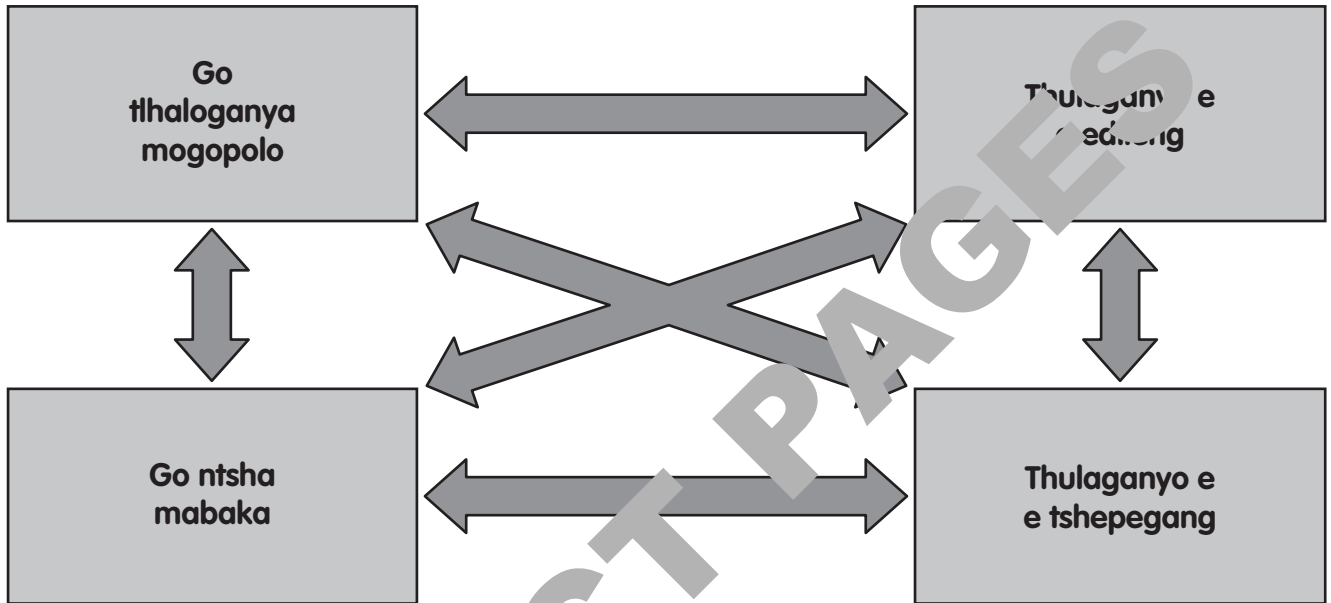
Laela barutwana go dirisa ditshwarwa go supa $3 + 2$. Ba ka kgobokanya diboloko mme ba di bala go bona plaogotlho.

Popo ya dinomere go ya go 5



Go Rutela Dipalo go Tlhaloganya

Go tlhaloganya dipalo go akaretsa go akanya ka go dira ka kelotlhoko, e seng fela go kokoanya tshedimosetso kgotsa go sala morago ditsamaiso. Go tlhaloganya go supa fa barutwana ba kgona go tshegetsa ditlhaloso tsa dipalo le go ikamanya le melawana ya ditlhaloso tseo. Setshwantsho se se fa tlase se supa mokgwa wa lelhomeso la go ruta le go ithuta dipalo ka go tlhagisa dintlha di le nne tse di gatelelang botlhokwa ba go nna le bokgoni le go tlhaloganya dipalo ka tsenelelo.



Go aga mogopolo	Go ithuta ka go dira	Go tlhaloganya dipalo	Go rarabalo ditharaano	Go tlhomamisa dikarabo	Dipalo mo tirisong
Go ikatisa	MORUTWANA JAAKA PINAGARE YA PHAPOSI-BKGOTSAUTELO				Go baakanya diphoso tsa barutwana
Go ... ya dits...					Tlhatlhobo e e maleba
Go bua dipalo	Go tlhalosa megopolo le dithulaganyo	Gi thiba diphatla mo kitsong ya morutwana		Go golaganya ditlhogo le megopolo	

Go tlhaloga Mogopolo: Go tlhaloganya megopolo, ditiragatso le dikgolagano tsa dipalo.

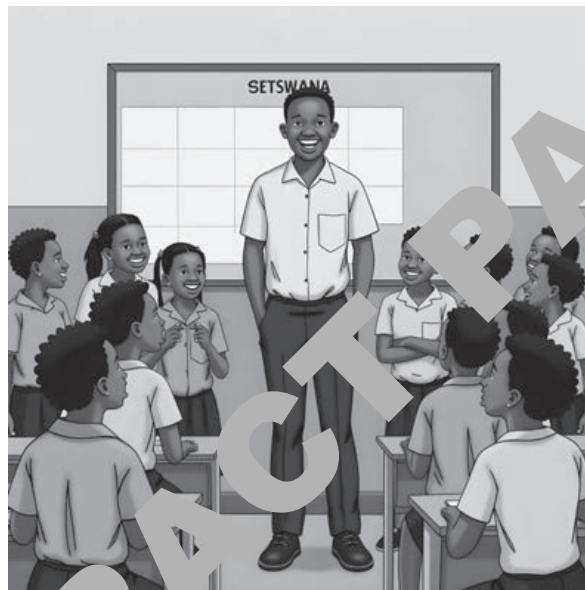
Thulaganyo e Edileng: Go diragatsa dithulaganyo tsa dipalo sentle, ka nako, le ka phuthologo.

Thulaganyo e e Tshepegang: Go aga, go emela, le go rarabolola ditharaano tsa dipalo.

Go Ntsha Mabaka: Go tlhatlhanya, go tlhalosa le go netefatsa diSamaiso le ditharabololo tsa dipalo.

Mekgwa e, e golagana sentle mo **phaposi-borutelo e morutabanae leng pinagare**, go gatelela go ithuta ka go dira, go aga mogopolo, go rarabolola ditharaanole go tlhaloganya dipalo.

Phaposiborutelo gape e itebagantse le diSamaiso tsa go ikatisa, go dira dikgolagano le go tswala diSama tse di mo kitsong ya barutwana. Letlhomeso le le fa tlase le ruta dipalo ka kakaretso, gore di tlhalogangwe ka mekgwa o o akaretsang le o o kopantsweng.



Kgato ya Motheo Dipalo Mephato 1–3

1.4 Kabo ya Nako

1.4.1 Kgato ya Motheo

(a) Nako ya go ruta ya dirutwa tsa Kgato ya Motheo tse di kailweng mo lenaneong le le fa tlase:

SERUTWA	MOPHATO R (DIURA)	MEPHATO 1-2 (DIURA)	MEPHATO 3 (DIURA)
Puo ya Gae	10	7/8	7/8
Puo Tlaleletso ya Ntlha		2/3	4
Dipalo	7	7	7
Dikgono tsa Botshelo	6	6	7
Kitso ya Tshimologo	(1)	(1)	(2)
Boithamedi mo go tsa Botsweretshi	(2)	(2)	(2)
Thuto ya Ikatiso ya Mmele	(2)		(2)
Thuto ya boitekanelo jwa motho le loago	(1)	(1)	(1)
GOTLHE	23	23	25

(b) Nako ya go ruta ya Mephato R, 1 le 2 ke diura di le 23 mme ya Mophato 3 ke diura di le 25.

(c) Diura di le 10 mo dipuong di abetswe Mephato R-2 mme diura di le 11 ke tsa Mophato 2. Bogolo jwa diura di le 8 le bonnye jwa diura di le 7 di abetswe Puo ya Gae, bonnye jwa diura di le 2 le bogolo jwa diura di le 3 di abetswe Puotlaleletso mo mephatong R-2. Mo mephatong R-2 bogolo jwa diura di le 8 le bonnye jwa diura di le 7 di abetswe Puo ya Gae fa bonnye jwa diura di le 3 le bogolo jwa diura di le 4 di abetswe Puotlaleletso ya Ntlha.

(d) Mo serutweng sa Dikgono tsa Botshelo, Kitso ya Tshimologo e abetswe ura e le 1 mo mephatong ya R-2 le diura di le 2 jaaka go kailwe ka diura di le 3 mo masakaneng mo mephatong wa 3.

1.4.2 Kgato ya Magareng

(a) Nako ya go ruta ya dirutwa tsa Kgato ya Magareng tse di kailweng mo lenaneong le le fa tlase:

SERUTWA	DIURA
Puo ya Gae	6
Puo Tlaleletso ya Ntlha	5
Dipalo	6
Disaense tsa Tlhago le Thekenoloji	3,5
Disaense tsa Loago	3
Dikgono tsa Botshelo	4
Boithamedi mo go tsa Botsweretshi	(1,5)
Thuto ya Ikatiso ya Mmele	(1)
Thuto ya boitekanelo jwa motho le loago	(1,5)
GOTLHE	27,5

Metlobo ya didirisiwa tsa thuto

Kagego ya buka ya morutwana

Dikgang = metsotso 10

Tiro ka nosi = metsotso 10

Buka ya Morutabana e neelana ka **ditšhono tse dintsi tsa go ikatisa** ka bongwe, le ditsala, ka setlhopha, le ka ditirwana tsa phaposi go nitamisa bokgoni. E gatelela tlhabololo ya bokgoni ka **metshameko e e ngokang le ditirwana tse di itumedisang**, e neela barutwana ditsela tse dingwe tsa go tlaleletsa le go ba thusa go tlhaloganya. Ditirwana tse di rotloetsa tlhatlhobo e e tswelletseng fela, gape di tlisa **maitemogelo a a kgatlisang a boithhamedi**.

Dikgang	Dikgang di tsentswe mo bukeng go thusa go gakologelwa ke go tlhaloganya ka go go akanya megopolo e e rotloetsang go akanya
Tiro ka nosi	Fa go rotloetswa go ikaga le go akanya ka tsenelelo , e le fa go rotloedivisa barutwana go tsaya taolo ya thuto ya bona le go gola mo bokgoning ba ditharaano.
Tiro ya dithlopha = metsotso 24	Ditirwana tse di tshwaraganetsweng di rotloetsa puisano, go di boma ka dithlopha , le, bokgoni jwa go tlhaloganya megopolo e e farologaneng jaaka go godisa dikgono tsa tshediso tsa laogo .
Tiro ya phaposi yotlhe	Ditirwana tse di rotloetsa bommogo mo thutong, le go neela barutwana tšhono ya go abelana maitemogelo le go tsaya karolo mo dipuisanong.
Mafoko a maswa = metsotso 20	Ntsha e e tlhalosa tlotlofoko e ntšhwa le go thusa barutwana go tlhaloganya le go gakologelwa bokao jwa mafoko.
Nako ya go batlisisa	Mo ntšheng e, barutwana ba ntlwa tshedimosetso e ntsi e e rutang, le dipotso tse di rokotsang dikakanyo go batlisisa le go rarabolola ditharaano ka go itshimololela dilo.
Ditirwana = metsotso 24	Ka diporojeke tsa diatlo ditirwana tse di rokotsa boithhamedi le boithshimoleledi , go letla barutwana go dirisa kitsiso ya no diemong tsa nnete le go godisa go akanya mo go tseneletseng .

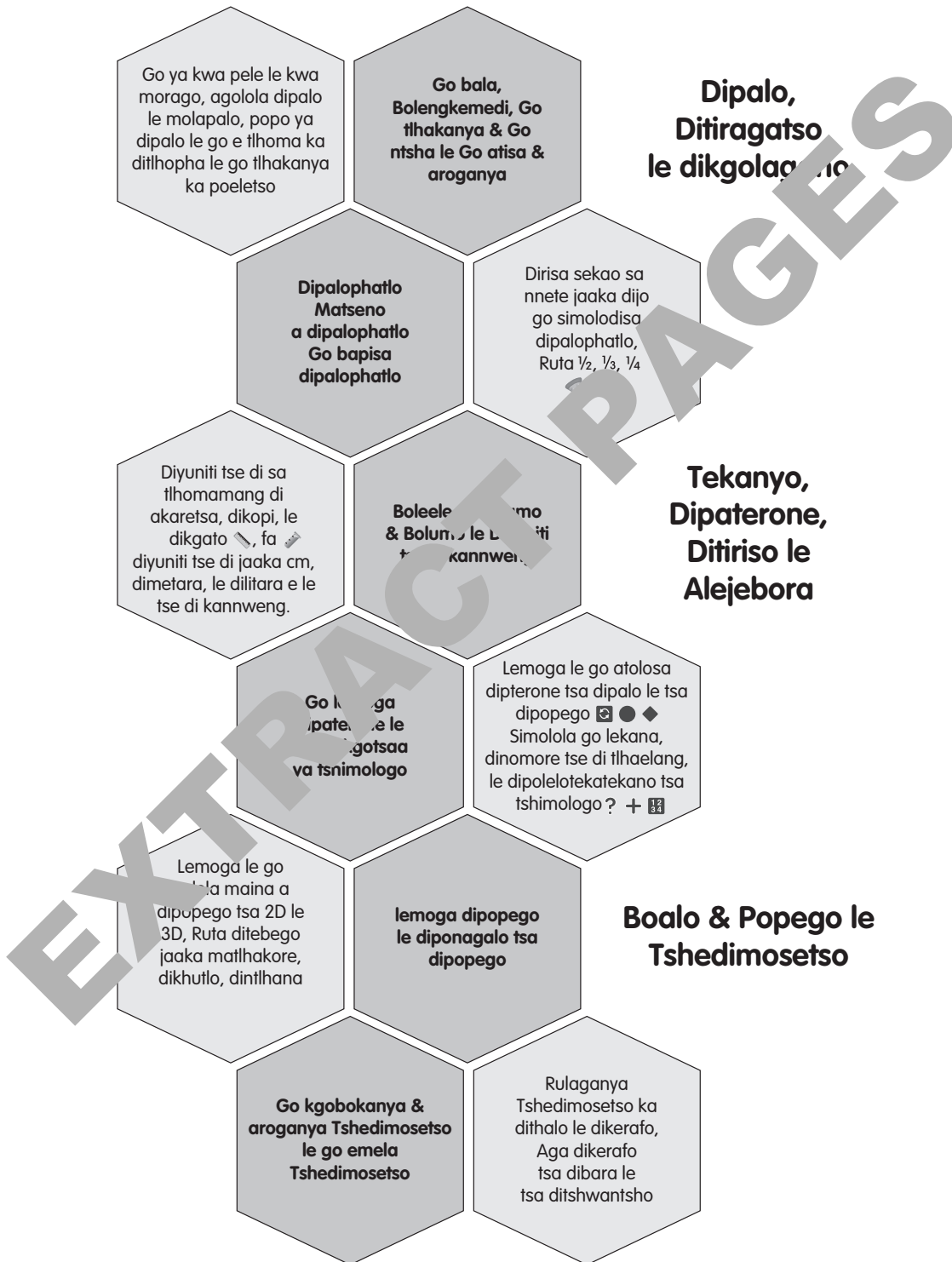
Thulaganyo ya buka ya morutabana ya dipalo ya Mophato 3

- Diteng di rulagantswe go simolola ka **dikgono tsa motheo** jaaka go bala le bolengkemedi, mme go tsenyeletswa **dikgopolo tse di raraaneng** a barutwana le dipalophatlo, dipaterone, le go tshwara tshedimosetso ka bonya.
- **Dithlogo di tse di tshwara go ntse go tswelletswe**: Diopereshene tsa dipalo di aga motheo go tlhaloganya dipalophatlo dipaterone di gogela kwa tshimologong ya ditiragatso, fa tekanyo e tlhagisa dikgopolo tse di amanang le bogolo le selekanyo, mme go tshwara tshedimosetso go agetse mo bokgoning jwa go tshwantshanya ja go aga dithalo.
- **Popego e e tswelletseng** e e netefatsa gore kgopolo nngwe le nngwe e tiisa le go baakanyetsa barutwana thuto e e latelang, go dira gore go nne le kgolagano e bana ba tla e itemogelang.

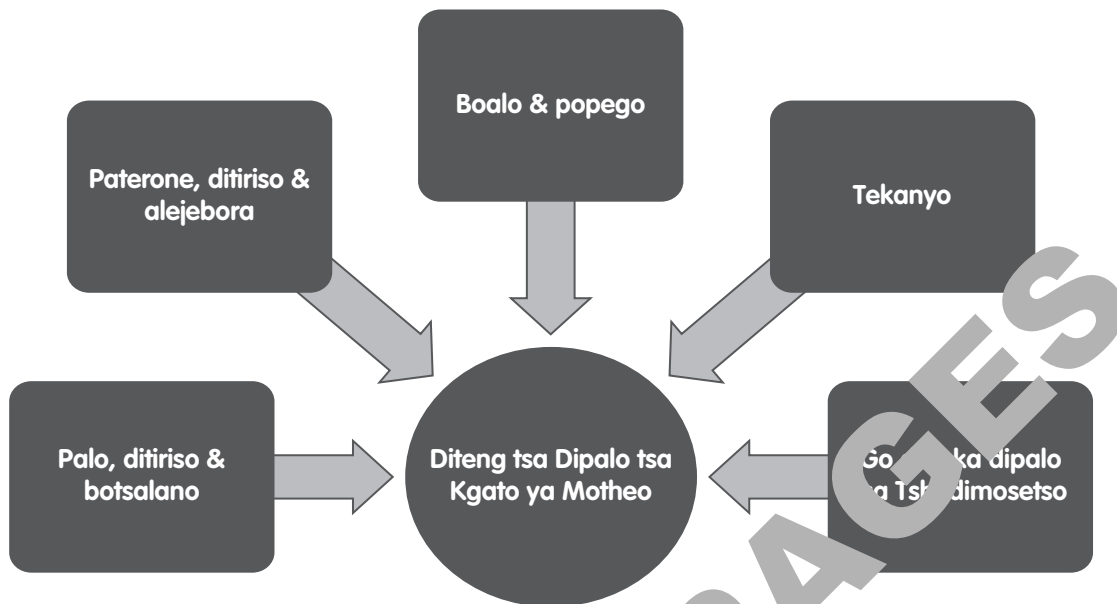
Kelelo le kgolagano

- Dithlogo tsa ATP di rulagantswe go simolola ka dikgono tsa motheo mme ka iketlo di tlhagisa dikgopolo tse di raraaneng.
- **Setlhogo sengwe le sengwe se golaganngwa le dikarolothuto tse di fetileng**: Ditiro tsa dipalo di aga diopereshene tsa dipalo di aga motheo go tlhaloganya dipalophatlo, dipaterone di gogela kwa tshimologong ya alejebora, fa tekanyo e tlhagisa dikgopolo tse di amanang le bogolo le selekanyo, mme go tshwara tshedimosetso go agetse mo bokgoning jwa go tshwantshanya ja go aga dithalo.

- Diteng di rulagantswe ka **mokgwa wa tswेतsetso le kopanyo**, go tlhomamisa gore kgopolo nngwe le nngwe e agela mo go e e latelang.
- Dipotso-malepa tsa bofelo ba kgweditharo di agilwe ka mokgwa wa kopanyo, ka go kopanya dipotso go tswa ditlhogong tse di farologaneng go akaretsa dikgono tse di farologaneng go thusa go tlhologanya.



Thulaganyo ya Kharikhulamo (CAPS)



Maikaelelo a thuto go ya ka diteng tsa seruru

Dipalo, ditiragatso le dikgolagano	Paterone, ditiriso le alejebora
<p>Mo legatong le, kitso ya barutwana ya dipalo e setse e agegile ka ba kgona go bala didirisiwa ka ditsela tsa farologaneng, go rarabolola ditharaano ka go agale go thuba dipalo.</p> <p>Go bala go thusa bana go gola mo dikakanyong tsa dipalo. E ka nna dipalo tsa tlhaloganyo, phetiso, bokgoni jwa go bala le go lemoga dipaterone.</p> <p>Go gola mo kakanyong ya dipalo go thusa barutwana go ithuta ka ga dipharologano tsa dipalo le go loga maano a a ka dirang gore dipalo go tshwane motlhofo.</p> <p>Tharabololo ya ditharaano di le tirisong e kgontsha barutwana go buisana ka kakanyo ya bona ka molomo le ka go kwala ka matshwao le matshwao.</p> <p>Barutwana ba tshwana fela tlhaloganya dipalo tsa motheo tsa go tlhalela, go ntsha, go atisa le go arola.</p> <p>Barutwana ba tshwana ka kakanyo tsa dipalophatlo ka go rarabolola ditharaano tse di akaretsang go abelana dilekanyo tsa nnete le ka go dirisa ditshwantsho. Ditharaano di tshwanetse go akaretsa ditharabololo tse di felelang ka palo e e feletseng ya sesala kgotsa dipalophatlo. Go abelana ga go a tshwanela go akaretsa fela gore mongwe le didirisiwa mongwe a fiwe karolo, mme gape go akaretsa gore di ka kokoanngwa jang go ya ka dikarolo. Mo legatong le, barutwana ga ba solofelwe go buisa kgotsa go kwala matshwao a dipalophatlo.</p>	<p>Mo legatong le, barutwana ba dira dipaterone tsa dipalo (sekao, go bala ka go tlola); le dipaterone tsa jometeri (sekao, ditshwantsho).</p> <p>Barutwana ba tshwanetse go dirisa didirisiwa tsa nnete, ditshwantsho le dipopego tsa matshwao go kopolola, go atolosa, go tlhalosa le go aga dipaterone.</p> <p>Go kopolola paterone go thusa barutwana go tlhaloganya gore paterone e dirilwe jang. Go atolosa paterone go thusa barutwana go tlhola gore a ba tlhalogantse kakego ya paterone sentle.</p> <p>Go tlhalosa paterone go thusa barutwana go gola mo tirisong ya puo. Go tsepamisa mogopolo mo kagegong ya dipaterone go aga motheo wa dokgono tsa go akanya ka alejebora.</p> <p>Dipaterone tsa dipalo di tlisa kgolo mo go akanyeng ka dipalo le tlhaloganya tiriso le kamano ya tsona.</p> <p>Dipaterone tsa jometeri di akaretsa tatelano ya mela, dipopego le didirisiwa gammogo le dipaterone mo lefatsheng ka kakaretso. Mo dipateroneng tsa jometeri barutwana ba dirisa kitso ya bona ya boemo le popego.</p>

Boalo le Popego (Jeometri)	Tekanyo
<p>Mo legatong le, barutwana ba tsepamisa mogopolo mo didirisiweng tsa popego ya 3-D, dipopego tsa 2-D, maemo, le ditaelo.</p> <p>Ba sekaseka dipharologanyo ka go tlhophha, go tlhaola, go tlhalosa le go fa dipopego le didirisiwa maina.</p> <p>Barutwana gape ba tshwantsha dipopego, ba aga ka didirisiwa, ba lemoga dipopego mo tikologong ya bona, le go tlhalosa maemo a didirisiwa ba dirisa tlotlofoko e e maleba.</p> <p>Mo godimo ga moo, ba ikatisa go latela le go naya ditaelo.</p>	<p>Mo legatong le, barutwana ba godisa kitso ya bona ya tekanyo ka go dira ka didirisiwa le dipopego tsa nnete, ba ithuta ka boleele, mothamo, bokete, boatlhamo, le nako.</p> <p>Ba lekanya ba dirisa diyuniti tse di sa tlhomamang jaaka diatla le dikgamelo mme ba bapisa selekanyo ba dirisa mareo a a jaaka moleele/khutshwane le bokete/ botlhofo.</p> <p>Barutwana ba itsisiwe diyuniti tse di sa tshwanetse (digerama, dikilogeramo, dilitha, ...).</p> <p>Ditirwana tse di amanang le tsa di tshwanetse thata le go thusa barutwana go tlhalosa go feta ga nako pele ba ithuta go e bapisa.</p>

Tshwaro ya Tshedimosetso
<p>Mo legatong le:</p> <p>Barutwana ba gola mo bokgoning ba bona ba go tlhaola, go emela go tlhalosa, ka seo se le botlhokwa fa ba dira ka Tshedimosetso.</p> <p>Barutwana ba ka neelwa didirisiwa tse di farologaneng gore ba di tshwanele go ya ka mebala. Ba ikatisa go tlhophha didirisiwa tse di jaaka dibadi ka ditlhopha tse di akaretsang mmala kgotsa mofuta jaaka mokgwaro, dikhurumelo tsa mabotlolo. Morago ba ba di tshwantsho go emela ditlhopha tsa bona tse ba di tlhophhilweng.</p> <p>Barutwana ba araba dipotso ka ga ditlhopha tse ba di tlhamileng, mme ka iketlo ba simolola go tlhaloganya sediko sa Tshedimosetso. Ka Kgwediitharo ya 4, barutwana ba tshwanetse go sekaseka dikemedi tsa ditshwantsho le go araba dipotso di ka nna pedi ka ga tsona.</p>

BOKGONG JWA DITENG TSA SERUTWA			
Diteng tsa serutwa	Mophato 1	Mophato 2	Mophato 3
Dipalo, diopereishene le bokgolagano*	65 %	60 %	58 %
Dipaterone, tioriso e Alejeu	10 %	10 %	10 %
Popego le boalo (Jeometri)	11 %	13 %	13 %
Go lekana	9 %	12 %	14 %
Go dira dipalo tsa tshedimosetso	5 %	5 %	5 %
	100 %	100 %	100 %

*Go botlhokwa gore tsepamo e nne mo dipalong, diopereishene le botsalano mo mophatong wa R. Letlelela barutwana go feisa mo kगतong ya motheo ba tshwanetse gore ba bo ba tlhomame go tlhaloganya bokao jwa dipalo le go Motlotlo ka diopereishene.

Maikaelelo ka gore barutwana ban ne le bokgoni le go itshepa fa ba dira dipalo le go tlhakanya. Ka lebaka le, nako e e abetsweng dipalo, diopereishene le botsalano e okeditswe. Tiro ka bontsi e tshwanetse go tsepamedisiwa mo dopateroneng tsa dipalo go tiisa bokgoni jwa barutwana go dirisa dipalo

Tatelano le nako e e tlhaoletsweng diteng

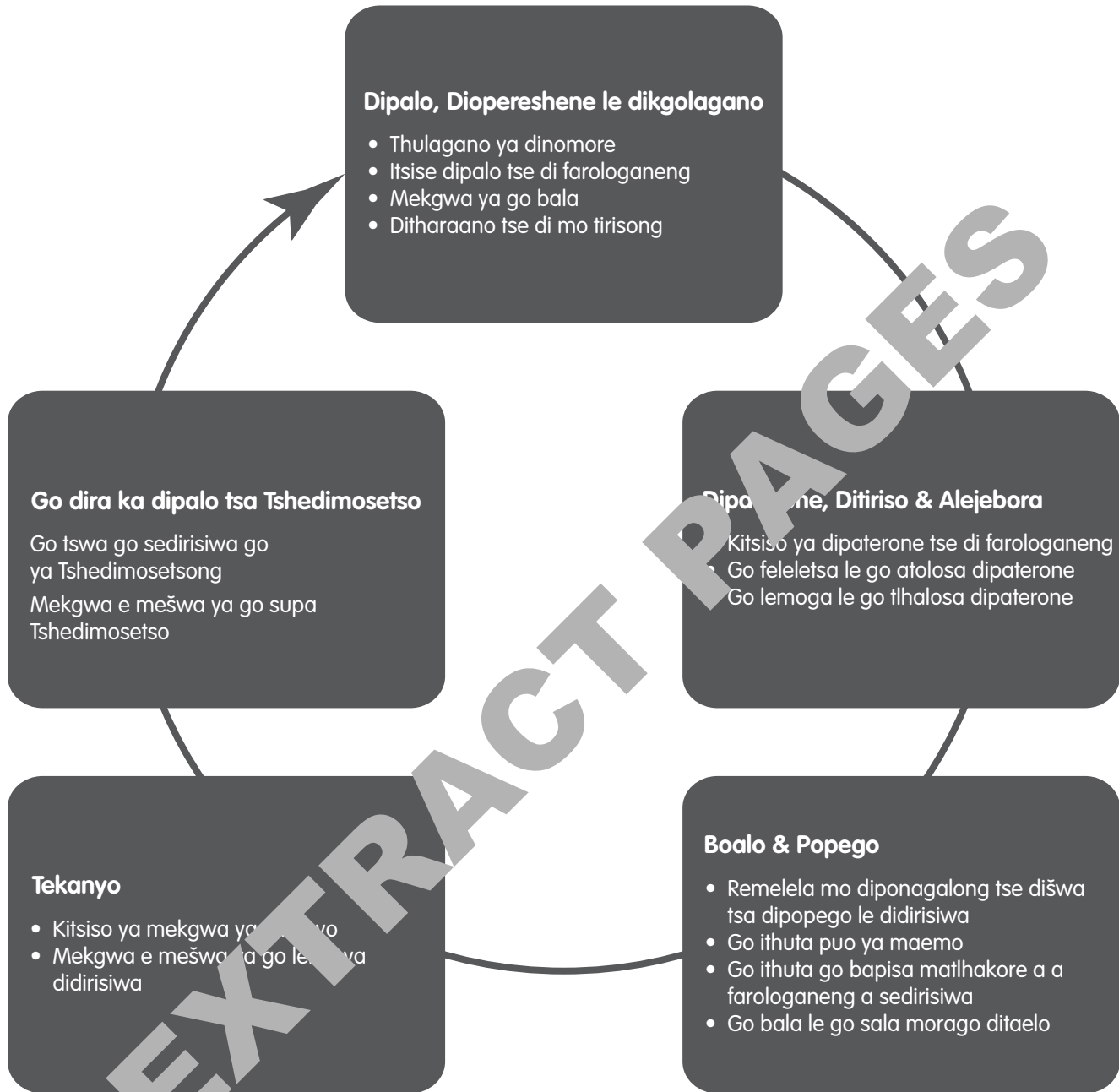
Kabo ya nako go ya ka diteng tsa beke

Diteng tsa serutwa	Ditlhogo	Nako e e tsitshintsweng
Dipalo, Matshwao le Dikgolagano	Go bala Temogo ya dipalo Supa le go tlhalosa dipalotlalo Kgopolopalo Go rarabolola dipalo	Metsotso e le 120
Dipaterone, Ditiriso le Alejebera	Kopolola, atolosa le go aga dipaterone tsa bone	Metsotso e le 80
Boalo le P opego (Jeometri)	Lemoga, tlhopha le go neela maina a tekanyo ya popegopedi (2-D) le ditshwantsho Tekanyo ya popego Aga dipopego tekanyo ya tlhakoretharo (3-D) o dirisa didiriswa tse di kgonngwang. Dikamano tsa boalo Dikaelo	Metsotso e le 80
Tekanyo	Nako Boleele Boima Mothamo	Metsotso e le 80
Go dira ka dipalo tsa tshedimosetso	Kgobokanya, tlhaka, tshwantsha, bala le go emela tshedimosetso	Metsotso e le 80
Palogotlhe		Metsotso e le 420/Diura di le 7 ka beke

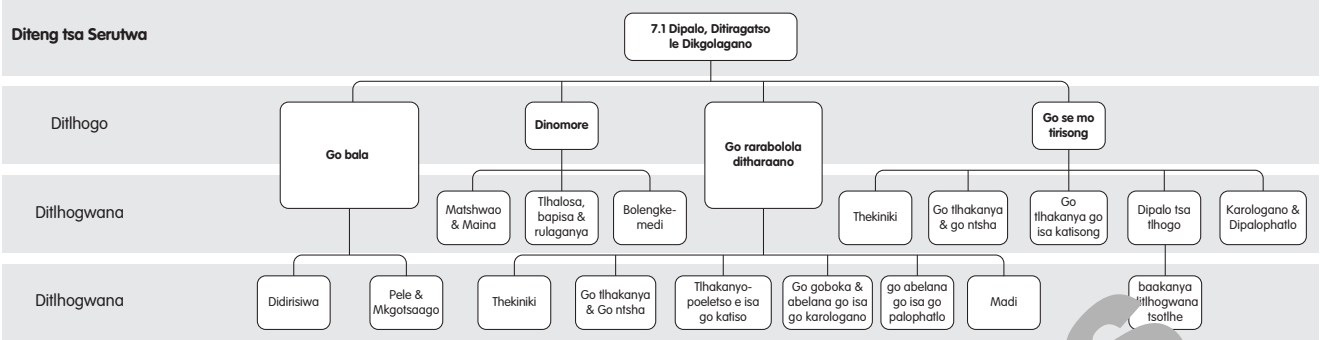
Palo ya dithuto tse di tsitshintsweng tsa diteng tsa serutwa tsa kgweditharo tsa Mophato 3

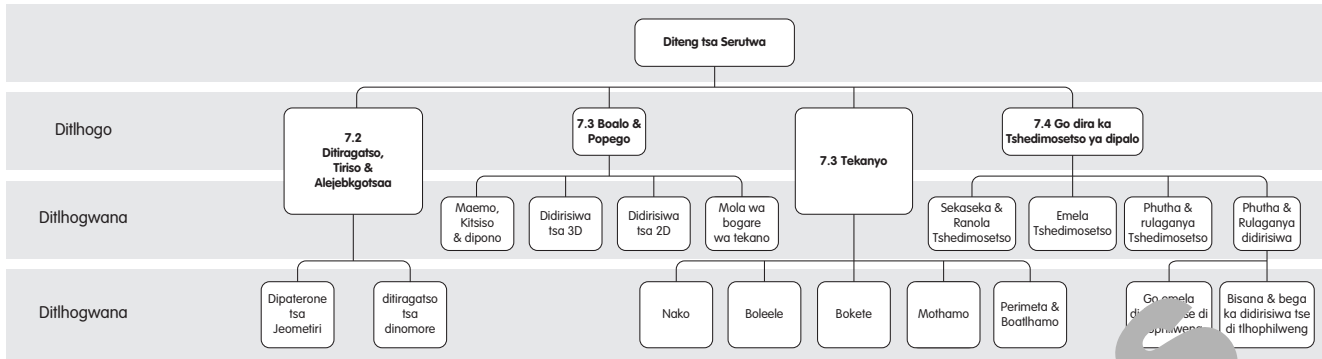
Diteng tsa serutwa	Sethogo	Palo ya dikamuso				
		Kgweditharo 1	Kgeditharo 2	Kgweditharo 3	Kgweditharo 4	Gotlhe
Dipalo, matshwao le dikgolagano	Ditlhogo tsotlhe, dipalo, matshwao le dikgolagano	26	22	19	27	94
Dipaterone mediro le Alejebera	Dipaterone tsa Dipalo	3	3	3	3	12
	Dipaterone tsa tekano	1	1	1	1	4
Boalo le popego (Tekano)	Tekatekanyo ya dipopegotlhakorepedi (2-D)	2		2		4
	Tekanyo ya popegotlhakoretharo (3-D)		2	3	1	7
	Maemo, kitsiso, le dikakanyo		1	3		5
	Tekatekano		2		1	3
Tekano	Nako	3	2	3	2	10
	Bolele		2	2		4
	Boima		2		1	3
	Mothamo/botlamo	2			1	3
	Modikologo			1		1
	Boemojwa sebojwa				2	2
Go dira ka Dipalo tsa tshedimoseitso	Kgobokano, rulaganya go lokolola didiriswa	3		3		6
	Karolo tsa sediko sa tshedimoseitso		1		1	2
Palo ya dithuto		40	40	40	40	160

Thulaganyo ya diteng le megopolo



Diteng tsa Serutwa







Dipalo • Mophato wa 3 • Kgweditharo 1

- + (Go oketsa)
- (Go fokotsa)
- = (Go lekana)

Ditharabololo tsa ditirwana le ditlathobo

Kgweditharo 1

Popego ya thuto ya megopolo ya e e tokafaditsweng ya dipalo tsa motheo:

A re tlhole kitso ya gago

Tsebe 3

A re boneng seo o se itseng mo tlhatlhobong eo maikaelelo e leng go tlhatlhoba bokgoni jwa barutwana ba dipalo le go tlhaloganya.

Megopolo ya bothokwa:

- Dikgono tsa go bala.
- Go tlhophisa le go bapisa.
- Go lemoga dinomere.
- Go kwala matshwao a dipalo.
- Go tlhakanya le go ntsha (dipalo tsa motheo).
- Go tlhaloganya didirisiwa tsa 3D le megopolo ya nako.
- Go rulaganya dikgwedi tsa ngwaga le malatsi a beke.
- Go rarabolola ditharaano.

<p>1. Go balela pele le morago</p> <p>Kwala dinomere tse di tlhaelang</p> <p>a. 17; 18; 19; 20; 21; 22</p> <p>b. 95; 96; 97; 98; 99; 100</p> <p>c. 54; 53; 52; 51; 50; 49</p> <p>d. 180; 179; 178; 177; 176; 175</p> <p>e. 146; 147; 148; 149; 150; 151</p>	<p>2. Go lemoga dinomere le go kwala matshwao</p> <p>Bapisa mafoko a dinomere le matshwao a tsona</p> <p>a. Masome thano-tharo 53</p> <p>Masome supa-robedi 78</p> <p>Masome robongwe -pedi 92</p> <p>b. letshwao la palo lemometlhano – 15.</p>
<p>3. Dipalo tsa motheo (go tlhakanya le go ntsha go fitlha go 20)</p> <p>a. Dinamune tse $12 + 5$ go feta 17</p> <p>b. $15 - 6 = 9$</p> <p>c. Dimonamone tse tsa dinamone tse $7 = 11$</p>	<p>4. Dithulagano le ditharabololo tsa tharaano</p> <p>a. kgwedi ya boraro ya ngwaga – Mopitlwe</p> <p>b. Mosupologo, Labobedi, Laboraro, Labone, Labotlhano, Lamatlhatso, Latshipi</p> <p>c. Fa gompiono e le Mosupologo, e tla. bo e le la bokae morago ga malatsi a le mane? Labotlhano.</p> <p>d. Lerang o na le R15, o reka setshamekisi sa R9. O saletswe ke R6</p> <p>e. Bese e na le ditilo di le 20, go setse go dirisitswe di le 7. $20 - 7 =$ ditilo di le 13 tse di setseng.</p>

A re simolole loeto la rona la go bala!

Go balela pele le morago ka 1

Tsebe 6

Maikaelelo a thuto:

- Balela pele le morago ka 1 go tswa go nomore nngwe e e mo gare ga 1-180.
- Tlhomamisa gore barutwana ba itse go bitsa maina a dipalo tse di nang le dinomere tse tharo.
- Ba fapose mo mokgweng o o fosagetseng wa go bitsa ba re "nngwe-pedi-nngwe" ba raya 121 fa ba tshwanetseng gore "lekgolo masome a mabedi le bongwe."

Matseno

Thusa barutwana go ikatisa go bala le go tila mekgwa e e fosagetseng, simolola ka tirwa ya fela e e bonolo e e dirisang dikarata tsa dipalo.

Akanya ka setlhopha sa dikarata tsa dipalo go tswa go 1 go ya go 180.

Sekao:

Naya sekao se sekhutshwane se se tlhagisang setlhogo (sekao, "Kopa barutwana go bala ka fela e e bonolo mo sekgabiseng sa molala mo Bukeng ya Barutwana").

Bontsha karata ya nomoro, o re "118." Kopa barutwana go balela kwa pele le morago go tswa go "118" go ya go "125." Go tswa foo, dira gore ba balele kwa morago go tswa go "125" go ya go "118."

Gatelela tsela e e nepagetseng ya go bitsa dipalo mme o ba thuse go ikatisa ka tatelano ya go tlhatloga le ya go fologa.

Didirisiwa

Dibadi
Dikarata
Didirisiwa tsa go bala fa go simolodisiwa setlhogo.

Mafokolelo a tšwa

Patlame: Go bala le morago ga dipalo, dipopego le mebala ka thulaganyo
Chofeta: Go selekanyo kgotsa palo e le kgolo kgotsa e feta palo ya dibadi

Kaelo

Ditaelo:

Simolola ka go tlotla ka sebetse se sepele mo botshelong. Rotloetsa barutwana go abelana ka dikao tsa didirisiwa tse ba di badileng kgotsa dikao tsa didirisiwa kgotsa dinomere tseo ba di lemogileng mo tikologong ya bone.

Botsa barutwana:

A o ka fa sekao se sekgabiseng o naya bala didirisiwa kae?

(sekao, ke bala e e nang le 12 mo kgetsaneng.)

Dikarabano tsa ditirwa tsa buka

Tirwa

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

2. 10; 11; 12; 13; 14; 15; 16; 17; 18

3. 38; 37; 36; 35; 34; 33; 32; 31; 30

4. 73; 74; 75; 76; 75; 74; 73; 72

5. 47; 48; 49; 50; 51; 52; 53; 54

Tsebe 6

Poeletso le kgatelelo: Go ikatisa ka go boeletsa go balela pele le morago go thusa go tlhaloganya dipalo le go di bitsa sentle. Akaretsa ditirwana tsa go bala dinako tsoitlhe.

Ditaelo:

Simolola ka go tlotla ka seabe sa dipalo mo botshelong. Rotloetsa barutwana go abelana ka dikao tsa didirisiwa tse ba di badileng kgotsa dipalo tsa didirisiwa kgotsa dinomere tseo ba di lemogileng mo tikologong ya bone.

Botsa barutwana:

A o ka fa sekao sa gore o ne o bala didirisiwa kae?

(sekao, ke badile diapole di le 12 mo kgetsaneng.)

O bone dipalo kae fa o le mo tseleng o ya sekolong?

(sekao, ke bone dipalo mo letshwaong la tsela kgotsa mo nomorong ya ntlo.)

A o lemogile matshwao a supang sekgala kgotsa matshwao a pharakano a a bontsha sephakanyo sa lobelo mo ditseleng?

Tlotla ka gore matshwao ano a bontsha dipalo jang (sekao, "60 km/h" kgotsa "3 km" mo yotlong).

Ke diphologolo dife tse o di boneng fa o ya sekolong, di ne di le kae?

(sekao, "Ke bone dintšwa di le 5 le dikgomo di le 2.")

Tsibogo ya go Ruta:

Tiro ka sebedi: Rotloetsa barutwana go dira ka sebedi fa ba bala didirisiwa kgotsa ba dirisa dibadi. Seno se dira gore ba dirisane mmogo, le go ba thusa go ithuta mo go ba bangwe mmogo le go dira ka tlhoafalo.

Poeletso le kgatelelo: Go ikatisa ka go boeletsa go balela pele le morago go thusa go tlhaloganya dipalo le go di bitsa sentle. Akaretsa ditirwana tsa go bala dinako tsoitlhe.

Ikatiso ya Morutwana ka Nosi:

Go ikatisa go bala kwa moalong:

Dira le barutwana mo moalong ba dirisa dibadi go ikatisa go balela kwa pele le kwa morago ka 1. Dira gore ba balele kwa godimo mme ba bapise dipalo tse di fetsang kgotsa tse di **kwa tlase ka 1** mo palong e e filweng.

Go balela godimo:

Kopa barutwana go balela kwa godimo go yabana pele le kwa morago go tswa mo dipalong te di neetsweng go supa tatelano ya dipalo le go bita mo tseleng.

Go farologanya:

Ditirwana tse di bokete:

Neela barutwana ba ditlhomileng pele dipalo tse dingwe tsa go bala go tlaelelsa, jaaka go bala ka 2 kgotsa 5.

Lebokoso kgwêthô!

Rulaganya le bokoso la kgwêthô le le nang le ditiro tse dintsi. Leboga barutwana ba ba fetsang seno ka tshwanelo, go ba rotloetsa segolo.

Bokhutlo

Itshekatsheko le Kgakololo:

Itshekatsheko ya Sethopha: Morago ga ditirwana, gobokanya barutwana, mme ba bue ka maitemogelo a bona. Botsa dipotso di tshwana le, "Ke eng se se neng se le thata kgotsa se le bonolo ka go bala gompieno?" le "O thusegile jang fa o bala ka ditsela tse di farologaneng?"

Kgakololo le Paakanyo: Kgalema mekgwa e e fosagetseng e o e lemogang fa go balwa, segolo jang mo go bitseng dipalo tsa dinomere tse tharo.

Go balela pele le morago ka 2; 3 le 4

Dipoelo tsa thuto:

- Barutwana ba tla tswela go bala ka 1 go ya go 2, 3, le 4 go tswa mo palong nngwe mo gare ga 0 – 180, ba itebagantse le go bitsa mafoko ka tshwanelo le go supa dipaterone ka tatelano.

Matseno	
<p>Dirisa molapalo mo bukeng ya barutwana go thusa barutwana go bala ka 2, 3, le 4, o tlhalose gore ba tla tlola dipalo go ya ka tatelano (sekao, tlola palo nngwe le nngwe ya bobedi gore o kgone go bala ka 2).</p> <p>Sekao: Go bala dibaga mo sekgabiseng sa molala:</p> <p>Laela barutwana go bala dibaga tse di mo setshwantshong sa sekagbisa sa molala ka 3 le 4, ba rotloetse go dirisa molapalo gore ba bone ditlolo fa ba ntse ba bala jalo.</p>	
Didirisiwa	Mafoko mafaka
Dibadi Didirisiwa tse barutwana ba ka di balang fa go itsisiwe setlhogo.	<p>Katsanetswa: Itsise barutwana le tse di tlhalosa mokgwa wa go bala ka ditlhopha (sekao, 2, 3, 5).</p> <p>Molapalo: Sedirisiwa sa thuto se se thusang barutwana go bala ka tatelano go dirisiwa mo le dipaterone.</p>
Kaelo	
<p>Ditaelo kgato -ka- kgato Simolodisa go bala ka ditlhopha:</p> <p>Simolodisa go bala ka ditlhopha tsa 2, 3, le 4, mme ba itebagantse dipalo tse di atisitsweng (sekao, dipalo tse di atisitsweng tsa 2 ke 2, 4, 6, 8...).</p> <p>Etelela phaposi pele mo go baleleng kwa go tlo, o tlo o ema go sekae go dira gore barutwana ba tswela go bala ka tatelano.</p> <p>Ditsibogo tsa go ruta: Rotloetsa barutwana go dira ka sebedi sa tse didirisiwa kgotsa dibadi ka ditlhopha tsa 2, 3, le 4.</p> <p>Dira gore ba bapise dipholo mo tse buisane ka gore ke mokgwa ofe wa go bala (ka 1, 2, 3, kgotsa 4) o o bofefo le gore ke ka goreng.</p> <p>Se se thusa go tlhaloga ka dipaterone le go bala ka tshwanelo.</p>	

Dikarabo tsa ditirwana tsa buka	
Tirwana	Tsebe 9
<p>1. a. 2; 4; 6; 8; 10; 12; 14; 16; 18</p> <p>b. 26; 24; 22; 20; 18; 16; 14; 12; 10</p> <p>c. 22; 24; 26; 28; 30; 32; 34; 36; 38</p> <p>d. 76; 74; 72; 70; 68; 66; 64; 62; 60</p> <p>e. 44; 46; 48; 50; 52; 54; 56; 58</p> <p>2. a. 1; 4; 7; 10; 13; 16; 19; 22</p> <p>b. 22; 19; 16; 13; 10; 7; 4; 1</p> <p>c. 18; 21; 24; 27; 30; 33; 36; 39</p> <p>d. 65; 62; 59; 56; 53; 50; 47; 44</p> <p>e. 14; 17; 20; 23; 26; 29; 32; 35</p> <p>3. a. 2; 6; 10; 14; 18; 22; 26; 30; 34</p> <p>b. 30; 26; 22; 18; 14; 10; 6; 2</p> <p>c. 14; 18; 22; 26; 30; 34; 38; 42</p> <p>d. 79; 75; 71; 67; 63; 59; 55; 51</p> <p>e. 62; 58; 54; 50; 46; 42; 38; 34</p>	
<p>Ikatiso ya Morutwana ka Nosi:</p> <p>Go ikatisa go bala kwa moalong:</p> <p>Dira gore barutwana ba nne mo moalong mme ba ikatise go balela kwa pele le kwa morago ka 2, 3, le 4 ba dirisa dibadi, go gatelelwe tatelano mo gare ga ditlhomagano tse difarologaneng (sekae, 3 go ya go 30 le kwa morago).</p> <p>Go tshwantshanya dipalo:</p> <p>Dira le barutwana go tshwantshanya dipalo (sekae, “2 go fedisa bokae kgotsa 2 kwa tlase ga 4?”) go ba thusa go tlhloganya dikoketso le diphokotsego mo tatelano.</p> <p>Ikatiso ya go balela godimo:</p> <p>Laela barutwana go balela godimo kwa pele le kwa morago go ba dirisa 2, 3, le 4, ba dirisa palo e e neetsweng e le go aga boitshupo le go bua ka thelelo.</p> <p>Go farologanya:</p> <p>Barutwana ba ba fa godimo:</p> <p>Go tswelletsa barutwana ba ba fa godimo, ba neele ditirwana tsa tlaletso tsa go bala. Dira Lebokoso la kgwêtlhō le le nang le ditirwana tse di tswelletseng neelane ka dimpho tse dinnye go bao ba feditseng ka tshwanelo go ba rotloetsa go tswelela ba tshwanelo.</p>	
Bokhutlo	
<p>Tlhomamisa gore barutwana ba ikatisa go bala ka 1, 2, 3, le 4 ka go ba fa seo e le tirogae malatsi otlhe.</p> <p>Go ikatisa mo go tla ba thusa go lemoga dipaterone, go tlhloganya tlhomagano, le go balela pele le morago ka go itshepa.</p>	

Monate wa dipalo

Go balela pele le morago ka 5,10 le 100

Maikaelelo a thuto:

- Barutwana ba tla tswelela go bala ka 5, 10, le 100 go tswa go 0-180, ba itebagantse le go bitsa mafoko, go lemoga dipaterone, le go tlhaloganya ka fa dipalo di fetogang ka teng fa go balwa ka ditlhotshwana tse di farologaneng. Seno se dira gore ba tlhaloganye dipaterone tsa go bala le tsa dipalo.

Matseno	
<p>Tlhalosa gore go bala go re thusa go latedisa dilo mo botshelong, jaaka dikgato kgotsa dihananetse, mme go bala ka ditlhopha tse di jaaka 2, 3, le 5 go senola dipaterone ebile go dira gore o bale ka pela.</p> <p>Sekao: Kopa barutwana go bala didirisiwa tsa mo Phaposiborutelong, jaaka ditafole kgotsa ditlhopha tsa, ka ditlhopha (sekao, 2, 3, 5) go bona palogotlhe ka bonako. Tlhalosa gore go bala ka ditlhopha go thusa go kopanya didirisiwa, mme ga go tshwane le go bala ka bongwe.</p>	
Didirisiwa	Mafoko a nnete
Dibadi	<p>Kgoboka: Buisanang ka gore go baya didirisiwa ka ditlhopha tse di jaaka 2, 3, le 5 gore go nne bonako le mafoko a nnete.</p> <p>Dibadi: Baya dibadi tse di tshwaregang kgotsa didirisiwa go supa gore go balwa ka ditlhopha jang</p>
Kaelo	
<p>Ditaelo:</p> <p>Go ikatisa go bala kwa moalong Dira gore barutwana ba nne fa fatshe mme ba tshwara go balela kwa pele le kwa morago ka 5, 10, le 100, ba dirisa dibadi kgotsa didirisiwa tsa thuto go tlhalela tlhaloganya.</p> <p>Thutiso ya Dipalo: Dira dithutiso tse dingwe tse di tshwara go balela pele le morago, o itebanagitse le go bala ka 5, 10, le 100.</p> <p>Go tshwantshanya dipalo Dira le barutwana ka go tshwantshanya dinomere tse di fetang ka 5 le 10 kgotsa tse di kwa tlasega palo e e filweng ka 5 le 10 le tse di kwa tlase ka 5 kgotsa 10. Sekao, fa palo e le 20, tlhomamisa gore fa o e oketsa ka 5 kgotsa o e isa tlase ka 10, e tshwara bokae.</p> <p>Ikatiso ya go tshwara godimo: Dira gore barutwana ba balele kwa pele le kwa morago, ba buela godimo, ba bala ka 5 le 10 go tswa mo palong e e neelwereng.</p> <p>Go felela ka pampiritiro: Neela barutwana pampiritiro e e nang le go bala ka 5 le 10 gore ba e tlatsa ka bongwe kgotsa ka sebedi.</p> <p>Tsibogo ya go Ruta: A barutwana ba nne sebedi go bala didirisiwa ka 5 mme ba bapise dikarabo. Buisanang gore ke eng fa go bala ka 5 kgotsa 10 go le bonako go na le go bala ka 1.</p>	

Dikarabo tsa ditirwana tsa buka

Tirwana:

Tsebe 11

1. a. 0; 5; 10; **15; 20; 25; 30; 35**
 b. 50; 45; 40; **35; 30; 25; 20; 15**
 c. **16 ;21; 26;** 31; 36; **41; 46; 51**
 d. 39; 34; **29; 24; 19; 14; 9; 4**
2. a. 0; 10; **20; 30; 40; 50; 60; 70**
 b. 70; 60; **50; 40; 30; 20; 10**
 c. **11; 21;** 31; 41; 51; **61; 71; 81**
 d. 84; 74; **64; 54; 44; 34; 24**
3. a. 100; **200; 300; 400; 500**
 b. 500; **400; 300;** 200; **100**
 c. **120; 220; 320; 420**
 d. 455; 355; **255; 155**

Tiro ya setlhopha

Balelang kwa pele le morago ka 5 le 10 lotlhe ka phaposi, go tswa mo dipalotse tse di fa gare ga 1 le 180. Boeletsang makgetho a le 6 go nitamisa.

Go Farologanya:

Barutwana ba ba fa godimo: Ba fe dipalo tse ba tla fiwang dimpho tsa ba dirile sentle.

Barutwana ba ba Tlhokang Tshegetso: Ba fe thuso ka bongwe o ba tsa kwa tafoleng ya Morutabana mme o atswa maiteko a bone go ba rotloetsa.

Bokhutlo

Ikatiso ya Letsatsi le Letsatsi: Neela tirogae ya go hloga ka 5, 10, le 100 malatsi otlhe go rotloetsa go itshepa.

Go nonotsha: Boeletsa dintlha tsa botlhokwa tse tsaaka go bala ka dipalo tse dintsi, go tshwantshanya dipalo le go lemoga dipaterone.

Thotloetso: Tlhagisa tswelelopele mme o rotse ikatiso mo Phaposiborutelong le kwa gae.

Go tshameka ka ditiragatso tse di farologaneng

Kamano ya (+) le (-)

Maikaelelo a thuto:

- Dira gore barutwana ba balele kwa pele le kwa morago ka 10, 5, 2, 3, le 4 go tswa mo palong epe fela ya dipalo tse mo magareng ga 0-200 le ka 100 go fitlha go 500.
- Kamano ya + le -: Gatelela ka fa go tlhakanya le go ntsha di amanang ka teng.
- Maina a Papiso: Ikatise go dirisa mareo a a tshwanang le go feta le kwa tlase go tshwantshanya dipalo.

Matseno	
<p>Tlhalosa gore go tlhakanya le go ntsha go re thusa go tlhaloganya kafa dipalo di fetogang ka teng, fela jaaka go bala ka 10, 5, 2, go re thusang go bona dipaterone tsa dipalo ka gone.</p> <p>Diopereshene tseno ke ditsala tse dikgolo mo dipalong, di dira mmogo go bontsha kafa dipalo di tSamaelang kwa pele le kwa morago ka gona.</p> <p>Sekao: Supa kgolagano: $45 + 5 = 50$ (go tlhakanya ka 5) $50 - 5 = 45$ (go ntsha ka 5) Supa thulagano ya go bala ka 10 le 5 go gatelela kamano le go ikatise go balela pele le Morago.</p>	
Didirisiwa	Mafoko a mašwa
Diboto tse tshweu	<p>Phetsolo: Mokgwa wa go dira tatelano go tswa morago.</p> <p>Tlase: Boleng jo bonnye mo go jo bongwe.</p> <p>Go feta: Boleng jo bogolo go feta boleng jo bongwe.</p>
<p>Tlhalosa gore go tlhakanya le go ntsha go re thusa go sekgamejana sa pampiri kafa dipalo di fetogang ka teng, fela jaaka go bala ka 10, 5, 2, go re thusang go bona dipaterone tsa dipalo ka gone.</p> <p>Diopereshene tseno ke ditsala tse dikgolo mo dipalong, di dira mmogo go bontsha kafa dipalo di tSamaelang kwa pele le kwa morago ka gona.</p> <p>Sekao: Supa kgolagano: $45 + 5 = 50$ (go tlhakanya ka 5) $50 - 5 = 45$ (go ntsha ka 5) Supa thulagano ya go bala ka 10 le 5 go gatelela kamano le go ikatise go balela pele le Morago.</p>	
Didirisiwa	Mafoko a mašwa
Diboto tse tshweu Sekgamejana sa pampiri	<p>Phetsolo: Mokgwa wa go dira tatelano go tswa morago.</p> <p>Tlase: Boleng jo bonnye mo go jo bongwe.</p> <p>Go feta: Boleng jo bogolo go feta boleng jo bongwe.</p>
Kaelo	
<p>Ditaelo: Tirwana ya kwa moalong: Thusa barutwana ba ba itemogelang matsapa a go bala ka poelomorago . Ba biletse kwa moalong mme o ba katise.</p> <p>Go feleletsa Pampiritiro: Neela barutwana dipampiritiro tse di nang le dikai tsa bala go ka poelomorago (re lebile go tlhakanya le go ntsha). Ba fe tshegetso jaaka ba tswelotse go dira.</p> <p>Baya tswelelopele leithlo: Rekota tswelelopele ya barutwana mme o supe ba ba tlhokang thuso. Rulaganya ditirwana tsa moalo go thusa.</p>	

Ditsibogo ya go ruta:

Tiro ya Sebedi: Kgaoganya barutwana ka sebedi. Mongwe le mongwe a kwale palo ya go tlhakanya e e tshwanang le e e mo matsenong.

Jaanong ba fapaanye dipampiritiro go rarabolola opereshene ya poelomorago (e e leng go ntsha). Tirwana e, e gatelela kamano fa gare ga go tlhakanya le go ntsha.

Dikarabo tsa ditirwana tsa buka

Tsebe 13

tiragatso	tiragatso ya poelomorago		
$5 + 1 = 6$	$6 - 1 = 5$		2. a. 124 e kgolo go121
$8 + 2 = 10$	$10 - 2 = 8$		b. 142 e nnye go146
$10 - 3 = 7$	$3 + 7 = 10$		c. 155 e kgolo go153
$25 + 30 = 55$	$55 - 30 = 25$		d. 164 e nnye go161
$87 + 13 = 100$	$100 - 13 = 87$		e. 182 e kgolo go172
$195 - 60 = 135$	$135 + 60 = 195$		f. 196 e nnye go200

Tiro ya Setlhopha:

Dira gore barutwana ba balele mmogo go ya kwa pele le kwa morago ka 5 le go tswa kwa dintlheng tse di farologaneng tsa tshimologo mo magareng ga 1 go ya go 180.

Boeletsa mokgwa ono makgetlo a ka nna 6 go nonotsha bokgoni jwa go bala le go tiisa kamano fa gare ga go tlhakanya le go ntsha.

Go Farologanya:

Barutwana ba ba fa godimo: Go godisa bokgoni le go ba ba nyetsa isago, neela barutwana potso ya dipalo e e popota mme e na le dikatso fa e dirilwe sentle.

Barutwana ba ba Tlhokang Tshegetso: Neela barutwana tshono ya go nna le wena kwa tafoleng. Neelana ka dikatso go rotloetsa maiteko le kgatelopele ya bona.

Bokhutlo

Gatelela botlhokwa jwa go ikatisa ka tlhaka go baleleng kwa morago le ka ditlhopha.

Rotloetsa barutwana go godisa bokgoni go dira seo letsatsi le letsatsi jaaka tirogae.

Tatelano e e tthatlogang le e e fologang

Maikaelelo a thuto:

- Barutwana ba tla balela kwa pele le kwa morago ka katisanetswa nngwe le nngwe (10, 5, 2,3, le 4) e e magareng ga 0–200 le ka 100 go fitlha go 500.
- Ba tla tswelela ba dirisa kamano fa gare ga go tlhakanya le go ntsha, mme ba tswetsetse ka go lemoga maina a a jaaka go feta le kwa tlase ga, le go ikatisa go bala ka tatelano e tthatlogang le e e fologang.

Matseno

Kwala dipalo mo botong ka tatelano e e sa rulaganngwang:
Dikao tse dingwe: 45; 12; 78; 34; 89; 23;67; 56.

Tlhalosetsa barutwana gore dipalo tse di mo tatelanong e e sa rulaganngwang di ka tlhakanya tlhogo. Botsa gore, “Ke palo efe e nnye go gaisa?” le “Ke efe e kgolo?”

Morago ga moo kopa barutwana go thusa go rulaganya dipalo tse go tswa mo go tse dinnye go ya kwa go tse dikgolo go ba thusa go tlhaloganya.

Sekao:

Kwala tlhomagano ya dipalo: 17; 20; 22; 37; 51; 56; 75; 76; 85; 90.

Kwala “tatelano e e tthatlogang” le “tatelano e e fologang” mo botong.

Buisana le barutwana gore mareo a a kaya eng. Netefatsa gore ba tlhaloganya gore go tthatloga go raya go bala go tswa mo go tse dinnye go ya kwa go tse dikgolo mme go fologa go raya go tswa mo go tse dikgolo go ya kwa go tse dinnye.

37	—	20
51	17	75
56	85	22

Didirisiwa

Tshate ya dinomere molapalo

Mafoko a mašwara

Tatelano e e tthatlogang: Go rulaganya dipalo go tswa go tse dinnye go ya go tse dikgolo kgotsa tse dinnye go ya go tse dikgolo

Tatelano e e fologang: Go rulaganya gape dipalo go tswa go tse dikgolo go ya go tse dinnye kgotsa go tswa go tse dikgolo go ya go tse dinnye

Kaelo

Ditaelo:

Go itebaganya le Diketsaetsego

Go tlhakatlhanya “go tthatlogang” le “go fologela”: barutwana ba tsiediwa ke mareo a.

Tsereganyo:

Dirisa didirisiwa tsa tlhathlano pono di tshwana le metswi(e lebe kwa godimo go supa go tthatloga, kwa tlase go supa go fologela) mme o kopa barutwana go rulaganya dinomere go tswa matlhakoreng otlhe.

Go tlola dipalo tse dikatisanetswa fa o bala: Barutwana ba ka tlola kgotsa ba tlaletsa ka dipalo tse dingwe.

Tsereganyo:

Neela barutwana molapalo mme o dirise dibadi go go bala ka dikatisanetswa (sekao, 2, 5, 10). Ikatise go balela kwa go tse dikgolo.

Go tlhaloganya “Go feta” le “Kwa tla ga”: Barutwana ba ka sokola go tlhaloganya mareo a.

Tsereganyo:

Dirisa molapalo le didirisiwa tse di bonalang go supa “go feta” a go ya ka fa mojeng mme ka fa molemeng o supa “kwa tlase ga.”

Tlhamalatsa ketsaetsego:

Tatelano e e tthatlogang: Kwala dinomere mo botong ka bongwe, mme barutwana ba tseye karolo ka go bolela palo e e latelang.

Tatelano e e fologang: Rulaganya dipalo tseo go tswa go e kgolo go ya go e nnye, o ntse o gatelela mogopolo wa "go ya tlase" jaaka boleng ba dipalo bo tswetse ka go fetoga.

Go dirisa dikatisanetswa: Tlhalosa gore go balwa jang ka dikatisanetsw (2, 5, 10). Simolola ka palo, o re 10, mme o bale go ya kwa godimo ka 10 (10, 20, 30...). Boeletsa ka go fologa (50, 40, 30...).

Diphoso tsa Tlwaelo: Supa gore go tlola dipalo kgotsa go di oketsa go agolola paterone. Dirisa mela ya dipalo go bontsha tatelano e e nepagetseng.

Dirisa dipolelwana tse di jaaka, "Fa 23 e le nnye mo go 45, 45 go feta ke bokae?" Didirisiwa tsa thuto di ka thusa barutwana go bona dikamano tse mo molapalong.

Ikatiseng Lotlhe:

Dira gore barutwana ba balele kwa godimo ka 2, 5, kgotsa ka 10 go tswa mo dintlheng tse di faroleng tse. Baakanya diphoso ka bonako.

Ditsibogo tsa go Ruta:

Rotloetsa barutwana go dirisa melapalo kgotsa didirisiwa tsa thuto fa ba na le matsamaisi go bala. Barutwana ba ba tlhaloganyang ka pela jaanong ba ka rutiwa ka "1 go feta" kgotsa "kwa tlase ga" ba ntse ba diria melapalo.

Gatelela kamano ya dipalo le botlhokwa ba go tlhaloganya mareo jaaka "gore" le "kwa tlase ga" re itebagantse le go tlhatloga le go fologa.

Dikarabo tsa ditirwana tsa buka

Tirwana:

Tsebe 15

1. a. **173; 174; 175; 176; 177; 178; 179; 180** (Go balela pele ka 1)
 b. **10; 12; 14; 16; 18; 20; 22; 24; 26** (Go balele pele ka 2)
 c. **56; 59; 62; 65; 68; 71; 74; 77** (Go balela pele ka 3)
 d. **10; 14; 18; 22; 26; 30; 34; 38** (Go balela pele ka 4)
 e. **24; 29; 34; 39; 44** (Go balele pele ka 5)
 f. **24; 34; 44; 54; 64** (Go balele pele ka 10)
 g. **120; 220; 320; 420** (Go balele pele ka 100)
2. a. **160; 159; 158; 157; 156; 155** (Go balela morago ka 1)
 b. **44; 42; 40; 38; 36; 34; 32; 30** (Go balela morago ka 2)
 c. **69; 66; 63; 60; 57; 54; 51** (Go balela morago ka 3)
 d. **48; 44; 40; 36; 32; 28; 24** (Go balela morago ka 4)
 e. **53; 48; 43; 38; 33** (Go balela morago ka 5)
 f. **62; 52; 42; 32; 22** (Go balela morago ka 10)
 g. **450; 350; 250; 150** (Go balela morago ka 100)
3. **80; 85; 90; 95; 100**
4. **100; 98; 96; 94; 92**

Tiro ya tsebo e nnye

Matseno a Ikgobololo:

Morago ga go buisana ka mogopolo wa tatelano e e tlhatlogang le e e fologang, laela barutwana go bitsa dinomere fela tse di sa latelaneng. Ba gwetlhe go dira tirwana ya setlhopha e ka yona ba tla rulaganyang dipalo tseo ka go tlhatloga kgotsa go fologa.

Tirwana ya Setlhopha:

Kgato 1: Kgaoganya barutwana ka ditlhopha (sebedi). Neela setlhopha sengwe le sengwe seo ba tla kwalelang mo go yona.

Kgato 2: Morutwana mongwe le mongwe a kwale dinomere fela tse a di itlhopetseng tse di mo gare ga 0-200. Di akaretse dikatisanetswa tsa 2, 5, 10, 3, le 4 go nonotsha bokgoni ba go bala.

Kgato 3: Barutwana ba tla fapaanya tiro ya bona. Tsala jaanong e tla rulaganya dipalo ka tatelano e e tlhatlogang (go simolola ka nomore e nnye go ya go e kgolo).

Kgato 4: Boeletsa dikgato, mme mo Nakong e, barutwana ba rulaganye dinomere ka tatelano e e fologang (go simolola ka nomore e kgolo go ya go e nnye).

Kgatelelo le Tshekatsheko:

Laela barutwana go tlhola tiro ya ba bangwe go bona gore a ba arabile sentle.

Buisanang ka diphoso tsa lona jaaka setlhopha mme lo buisane gore ke eng fa tatelano e e siamemg e le botlhokwa

Ikatiso ya Morutwana ka Nosi: Barutwana ba ba itemogelang matsapa ba laelwe go lebelela go e nnye le batsadi ba bona ba itsisiwe ka yona.

Bokhutlo

Gatelela go bala ka dikatisanetswa le go rulaganya dinomere ka tatelano e e tlhatlogang le e fologang—tlhomamisa gore barutwana ba ikatisa dinako tsothe ka ditirwana.

Neela barutwana dithutiso go ikatisa go balela kwa pele le kwa morago ka 2, 3, 4, 5, 10 le 100 go tswa mo dipalong tse di sa rulagangwang. Akaretsa dipotso tsa “go feta,” le “kwa tlase” go rulaganya dipalo ka tatelano e e tlhatlogang le e e fologang.

Go ikatisa ka metlha go nonotsha go tlhologanya dipalo le go lemoga tatelano ya tsona. Rotloetsa go dirisa melapalo le didirisiwa tsa thuto go tshegetsa.



Go balela kwa pele le kwa morago ka 10,5,2,3, le 4 go fitlha go 200

Maikaelelo a thuto:

- Barutwana ba tla nna le bokgoni jwa go bala ka thelelo ka dikatisanetswa tsa 10, 5, 2, 3, le 4 mo gare ga 0-200,
- ba ikatisa ka tatelano e e tlhatlogang le e e fologang. Ba tla tlhaloganya "go feta," "kwa tlase ga," le go lemoga dipaterone, le go baakanya diphosagalo ka tatelano ya dipalo, fa ba ntse ba nonotsha go tlhakanya le go ntsha ka phapaano.

Matseno
<p>Boeletsa dintlha tsa botlhokwa: go balela kwa pele le kwa morago ka dikatisanetswa (2, 3, 4, 5, 10) mo gare ga 0-200. Gatelela go tlhaloganya tatelano e e tlhatlogang/e e fologang, dipaterone, poelomorago le phosagalo tshwanang le "go feta" le "kwa klas ga."</p> <p>Sekao: Go Bala Dikatisanetswa: Dira gore barutwana ba eme. Bitsa nomoro, mme o ba dire gore ba balele kwa pele ka dikatisanetswa (2, 3, 4, 5, kgotsa 10) go fitlha go 200, o bo o boela kwa morago mme o balele kwa morago.</p> <ul style="list-style-type: none">• Ikatiso ya Tatelano: Kwala dipalo tse di sa rulagangwang mo botong (sekao, 16, 45, 80, 22, 100). Dira gore barutwana ba di rulaganye ka tatelano ya go tlhatloga le go fologa. Tlotla ka fa dikatisanetswa di tshwanang le tse di tshwanang mo go latelaneng.• Partner Tirwana: Ka sebedi, barutwana ba kwala dipalo (0-200) mo dibotong tse ditsala mme ba di fapaanya. Dinomere di rulagangwa ka tatelano e e tlhatlogang le e e fologang, di itebagantse mo dikatisanetswa tse di tshwanang le 10 le 5.
Didirisiwa
Tshate ya dipalo/molapalo Diboto tse ditshweu/pampiri Dikwadi
Kaelo
<p>Ditaelo: Matseno: Sekaseka go bala dikatisanetswa tse di tshwanang ya dinomere, le opereshene ya poelomorago.</p> <p>Tirwana ya go Dira: Letla barutwana go tla boneng go kwala dintlha tsa bona tsa go tlhakanya le go ntsha.</p> <p>Tiro ya Sebedi: Barutwana ba dira dipalo di le 4 tsa go tlhakanya le go ntsha mo dibotong tse ditshweu, ba di fapaanya le ditsala, mme ba di rarabe.</p> <p>Ditsibogo tsa go Rula: Kgothalele barutwana go tshate tsa dipalo kgotsa melapalo le go rulaganya. Fetola ditlhopho tsa barutwana ka metlha jaaka o tswela go fetola dipotso.</p>

Dikarabo tsa ditirwana tsa buka**Tirwana:**

Tsebe 18

- | | |
|---|--|
| 1. a. 190; 192; 194; 196; 198; 200
b. 200; 198; 196; 194; 192; 190 | 4. a. 175; 180; 185; 190; 195; 200
b. 193; 188; 183; 178; 173; 168 |
| 2. a. 185; 188; 191; 194; 197; 200
b. 198; 195; 192; 189; 186; 183 | 5. a. 150; 160; 170; 180; 190; 200
b. 190; 180; 170; 160; 150 |
| 3. a. 184; 188; 192; 196; 200
b. 179; 175; 171; 167; 164 | 6. a. 175; 180; 185; 190; 195; 200 (Go bala ka 5)
b. 185; 188; 191; 194; 197; 200 (Go bala ka 3)
c. 190; 192; 194; 196; 198; 200 (Go bala ka 2)
d. 100; 200; 300; 400; 500 (Go bala ka 100) |

Ikatiso ya Morutwana ka Nosi:

Dira le ditlhopho tse di nang le matsapa go balela kwa pele le kwa morago ka 2, 3, 4, le 5 go fitlha go 200. Dirisa dibadi go bona dikatisanetswa le tatelano ya tsona.

Tiro ya tsereganyo:

Go barutwana ba ba tlhokang tshegetso, oketsa ditirwana tsa ikatiso o dirisa dibadi tse di ntsi go tshegetsa tshegetso kgotsa metshameko ya go bala.

Nna ka nosi le barutwana ba ba nang le matsapa a go lemoga dipterone go tshegetsa go tlhakanya le go ntsha.

Go Farologanya:

Barutwana ba ba fa godimo ba ka fetsa tiro e e mo lebokosong go tshegetsa go tshegetsa e akaretsang go bala ka dikateniswa tse di farologaneng le go rarabolola diitharaano.

Atswa diphitlhelelo tsa bone go ba rotloetsa go tswelana go nna le seabe.

Go barutwana ba ba tlhokang thuso e ntsi, neelana go tshegetsa e e tsepameng le go ba ikatisa mo dintlheng tsa botlhokwa, go netefatsa gore ba a itshepa e bile ba tlhakanya.

Bokhutlo**Akanya ka foo:**

Kamuso eno e tiisitseng bokgoni ba barutwana ba go balela kwa pele le kwa morago ka dikateniswa le go latelana ka katlego.

Tiriso ya didirisiwa tsa thuto le tshegetso go dira di ne tsa tshegetsa phitlhelelo ya dipoelothuto.

Maitemogelo a a bonweneng go tshegetsa go rulaganyetsa thuto mo isagong le go thusa go dira gore thuto e tshwanele.

Dipalo tsa tlhogo ka nnete e e kgathlisang

Ditselana tsa dipalo tsa tlhogo

Maikaelelo a thuto:

- Rulaganya dipalo tse di filweng ka tatelano.
- Bapisa dipalo go fitlha go 150 go bona gore ke efe e e leng 1, 2, 3, 4, 5, kgotsa 10 go feta kgotsa kwa tlase.
- Dirisa dikamano tsa go tlhakanya le go ntsha.
- Gakologelwa ka bonako dintlha tsa go tlhakanya le go ntsha go fitlha go 15.
- Tlhakanya kgotsa ntsha dikatsanetswa tsa 10 mo gare ga 0–100.

Nako e e filweng ya Dipalo tsa Tlhogo: 20 metsotso

<p>Ditshimolodiso tsa Letsatsi tsa Dipalo tsa Tlhogo:</p> <ul style="list-style-type: none"> • Simolola ka puisano e e bofeho ya letsatsi, letlha, go nna teng, le maemo a bosa. • Botsa dipotso tse di bonako tsa tlhologanyo tse di jaaka: "Ke nomore efe e e tlang morago go 8?", "Ke nomore efe e e fetang kgotsa e e kwa tlase ga 8?", "Rarabolola $4 + 2$", "$5 - 2$ ke bokae?", "Rarabolola $6 + 2$."
<p>Ditirwana tsa Dipalo tsa Tlhogo:</p> <ul style="list-style-type: none"> • Dira ditirwana tsa letsatsi tsa dipalo tse di itebagantseng le go rulaganya, go bapisa dipalo, le go dirisa dintlha tsa go tlhakanya le go ntsha. • Akaretsa dithutiso tse di nang le go bala ka dikatsanetswa ($2, 3, 5, 10$) le go lemoga dipaterone. • Dirisa mela ya dipalo, ditshate, kgotsa dibadi go tshegetsa kutlwano. • Leba Kaedi ya Barutabana go bona dikarabo le kaelo.
<p>Dikatso tse di Tshitshingwang tsa Dipalo tsa Tlhogo</p> <ul style="list-style-type: none"> • Tlhama thulaganyo ya go dintlha go rotloetsa barutwana, go abela dintlha ka nepo le go tsaya karolo. • Fana ka dikatso tse di jaaka disetifikeiti, dikgompiensi, kgotsa ditshiamelo tsa diphitlhelelo go rotloetsa barutwana.

Ngwana mongwe le mongwe o tlhoka motheo o mampodi! Ka metlha naya barutwana ba gago ditshwaelo tse di siameng le fa ba sokodisa tsa tlhogo sengwe – thotloetso e e siameng e tla rotloetsa barutwana go tswelela ba leka.

Tirwana 1 Tsebe 20

<p>1. Dipalo tsa go tlhakanya:</p> <p>a. $150 + 30 = \mathbf{180}$</p> <p>b. $75 + 25 = \mathbf{100}$</p> <p>c. $130 + 70 = \mathbf{200}$</p>	<p>2. Dipalo tsa go ntsha:</p> <p>a. $200 - 75 = \mathbf{125}$</p> <p>b. $180 - 40 = \mathbf{140}$</p> <p>c. $145 - 25 = \mathbf{120}$</p>
<p>3. Dipalo tsa go menaganya:</p> <p>a. Menaganya $15 = \mathbf{90}$</p> <p>b. Menaganya $60 = \mathbf{120}$</p> <p>c. Menaganya $10 = \mathbf{220}$</p>	<p>4. Dipalo tsa go ripagare:</p> <p>a. Seripagare sa $100 = \mathbf{50}$</p> <p>b. Seripagare sa $150 = \mathbf{75}$</p> <p>c. Seripagare sa $80 = \mathbf{40}$</p>

Ditogamaano tsa go balela: Tsebe 22

<p>Tirwana 2</p> <p>$200 - 20 = 180$</p> <p>$180 - 20 = 160$</p> <p>$160 - 20 = 140$</p>	
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Tirwana 3 Tsebe 23

<p>Tirwana 3</p> <p>$185 - 15 = 170$</p> <p>$170 - 15 = 155$</p> <p>$155 - 15 = 140$</p>	
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Go bala didirisiwa ka tsela e e ikanyegang

Maikaelelo a thuto:

- Go Bala Dilo Tse di Tlhomameng:
Barutwana ba tla bala didirisiwa tse di tshwaregang go fitlha go 180 le 190, ba itebagantse le dithekeniki tsa go bala tse di nepagetseng.
- Bokgoni jwa go fopholetsa:
- Barutwana ba tla fopholetsa palo ya dilo mo setlhopheng go fitlha go 190 mme ba netefatse go nepagala ka go bala mo go ikanyegang.

Matseno	
<ul style="list-style-type: none"> • Lemoša bathuti ka go bala mo go tlhagelelang ka kgang tshingwana ya dijo ya ga Alo, go bonisa tiriso ya yona e e mosola mo botshelong. • Buisa kgang ya ga Alo jaaka ena le mmaagwe ba phutha merogo mo tshingwana ya yona. 	
<p>Sekao</p> <ul style="list-style-type: none"> • Botsa: "Fa Alo le mmaagwe ba ne ba phutha ditamati di le 12 le ditapole di le 8 merogo e le kae ka kakaretso?" • Tshwaraganya barutwana ka dipotso tse di jaaka: • "Go ka sala ditamati di le kae fa ba ka phutha di le 12?" • "Fa ba ka kgetla ditapole tse dingwe di le 8, ba tla nna le di le 12?" • Atolosa kgang ka ditiragalo tsa phopholetso go gatelela botlhokwa jwa go fopholetsa le go bala ka nepo. 	
Didirisiwa	Mafoko a mašwano
<p>Dibadi (seka, dinawa, diboloko, kgotsa dikonopo)</p> <p>Dišhate tsa dipalo kgotsa molapalo go thusa</p>	<p>Go bala: tiro ya go tlhoma tsona selekanyo kgotsa palo yotlhe ya dilo mo setlhopheng.</p> <p>Fopholetsa: go bala palo ya sengwe ka kabelelo.</p> <p>Boikarvego: go bala ka nepagala le tlhomamo.</p>
Kaelo	
<p>Morago ga matseno, kaela barutwana ka tšhira tsa diatla go ikatisa go bala didirisiwa le go fopholetsa selekanyo. Remelela mo go bala ka go ikanyega go fitlha go 190, o rotloetsa go bala ka setlhopho go kgothatsa barutwana.</p> <p>Tirwana ya Setlhopho: Kgaoganya barutwana ka setlhopho tse di potlana.</p> <p>Tiro ya Go bala: Neela setlhopho le sengwe diabdi kgotsa dingwe tsa didirisiwa go tswa mo phaposiborutelong (seka, dipensele, diboloko, diraba).</p> <p>Fopholetsa: Laela ditiragalo go fopholetsa palo ya didirisiwa tsa bona.</p> <p>Bala o Tlhole: Morago ga go fopholetsa, a setlhopho sengwe le sengwe se bale didirisiwa go bona gore a ba ne ba nepile.</p> <p>Go fa Pego:</p> <ul style="list-style-type: none"> • Ditlhopho di bega diphitlhelelo tsa tsona tsa phopholetso le go bala, di buisana ka dipharologano le dithuto tse di ithutilweng. • Rotloetsa maano a go bala jaaka go tlhoma ditlhopho ka 5, 10, kgotsa 20 go thusa go aga bokgoni • Gakolola barutwana go bala gape go netefatsa dikarabo tsa bona. 	

Dikarabo tsa ditirwana tsa buka

Tirwana:

Tsebe 25

Re na le ditamati di le 12, dinamune di le 8, le mae a le 6.

1. a. Ditamati le dinamune di le **20**
 b. Ditamati di le **9**
 c. Ditapole di le **12**
 d. Ditapole tse dintsi
2. a. Dikhurumelo tsa mabotlolo – **14**
 b. Ditlapisi tsa dipampiri – **24**

Tiro ya tsereganyo:

Ditsibogo tsa go Ruta:

- Gatelela botlhokwa jwa go fopholetsa le go bala gore go nne le nepagalo.
- Dirisa didirisiwa tse di farologaneng go ngoka barutwana.
- Farologanya ditiro: go bala mo go bonolo mo go ba ba tlhokang tshegetso, le di fopholetsa dikgolo kgotsa phopholetso e e raraaneng mo barutwanang ba ba itlhomileng pele.
- Tshegetsa barutwana ba ba nang le matsapa ka go rulaganya setlhopho tsa barutwana o dirisa dibadi go ikatisa go bala ka diatla, o itebagantse le 5, 10, le go bala go fitlha go 190.

Bokhutlo

- Rotloetsa barutwana go ikatisa go bala letsatsi le letsatsi ka go bala barogae.
- Abela barutwana ditirwana tsa go bala, go fopholetsa, le go netefatsa dipalo go fitlha go 190.
- Se se tla tiisa go ithuta le go aga boitshepo mo go balekane go fopholetsa.

EXTRACT PAGES

Go bala didirisiwa

Maikaelelo a thuto:

- Barutwana ba tla bala dilo tse di tshwaregang go fitlha go 180 le 190, ba dirisa dithekeniki tse di ikanyegang e bile di nepagetse tsa go bala.
- Ba tla fopholetsa dilekanyo go fitlha go 190 mme ba netefatse diphopholetso tseno ka go bala mo go nepagetseng.
- Go bala ka setlhopha:
- Rotloetsa barutwana go bala ka ditlhopha (sekao, 2, 5, 10) go ba thusa go tlhama maano a a nepagetseng a go bala.
- Tiriso mo Dilong tsa Mmatota:
- Kopanya go bala le go fopholetsa go senola palo ya nnete o dirisa dikgang tse di amanang le nchuposiborutelo go tsamaisana le kgang ya "Tshingwana ya dijo ya ga Alo."

Matseno	
<p>Simolola ka go buisana ka botlhokwa jwa go bala mo botshelong jwa letsatsi le letsatsi mme o neele dikao tsa ka fa batho ba balang dilo tse di farologaneng ka teng, jaaka diphologolo, tsa aijo le didirisiwa.</p> <p>Kopa barutwana go abelana maitemogelo a bona a go bala.</p> <p>Sekao: Ke dilwana dife tse o di badileng bogaufing? O ne o di bala kae? Ke eng fa go ne go le botlhokwa go itse palo e e tlhomamang? Fa o bala, o netefatsa jang gore ga o se fose kgotsa o boeletse dilwana dipe?</p> <p>Go Itebaganya le Diketsaetsego: Tlhalosetsa barutwana gore go bua ka tlhoma go go botlhokwa go feta go bua ka bofefo. Ka jalo o ba rotloetse go tsaya nako fa bala go netefatsa gore ba bala mo tsoelole. Tlhalosa gore phopholetso e dirwa ka botlhale go tswa ka palo e e gaufi. Tlotlela barutwana ka botlhokwa ba go bala ka ditlhopha (sekao, go bala ka 10) mo go dirang gore go bala go nne bofefo mme dipalo tse dikgolo di tshelane mogo.</p>	
Didirisiwa	Mokgomo swa
<p>Emere</p> <p>Dibadi di le 180 s (jaaka dibaga, dinawa, le dimabole)</p>	<p>Kopanyetso: go dira maiteko a a botlhale a palo e e gaufi le ya nnete.</p>
Kaelo	
<p>Morago ga Matseno kgaoganyana barutwana ka ditlhotšhwana.</p> <p>Naya a ditlhopho badidi mme o ba laele go bala ka ditlhopha tsa 10 go fitlha go 200.</p> <p>Gatelela nepagalo ka gore ba fopholetse palo ya dibadi pele ga ba di bala, morago o tlhole diphopholetso tsa bona.</p> <p>Gatelela gore go bala ka kelotlhoko go thibela diphoso mme go molemo ka go dirisa ditlhopha mme nepagalo ya gona e gaufi thata.</p> <p>Go tseenelela mo go tlhaloganyeng le bokgoni jwa go bala le go fopholetsa, akanyetsa maano ano:</p> <p>Dirisa Dikemedi tse di farologaneng: Dirisa didirisiwa tse di farologaneng (dinawa, diboloko) tsa go bala go tiisa kitso ya dipalo.</p> <p>Didirisiwa tsa Thuto: Dirisa melapalo le ditšhate go thusa barutwana go bona dipaterone le go tlhaloganya go dira ditlhopha.</p>	

Ikatiso ya Kaelo:

Simolola ka ditiro tse di bonolo tsa go bala mme o oketse go raraana ka iketlo, o ntse o fokotsa tshegetso fa nako e ntse e tšamaya go tlwaetsa go ikemela.

Go Rutana:

Rotloetsa barutwana go rutana, go tiisa kutlwisiso ya bona.

Dikarabo tsa ditirwana tsa buka

Tirwana:

Tsebe 26

Karabo ya Morutwana.

Barutwana ba tla dirisa dibadi go bala ka ditlhopha gore ba ithulaganye sentle. Barutwana ba tla bala ka 10 go fitlha go 200.

Tirwana e e thusa barutwana go ikatisa go reetsa le go netefatsa gore ba bala ka nepagalo.

Fa Morutwana a dira phoso, setlhopha se ka thusa.

Dikarabo

Tsebe 26

1. Didirisiwa tse dinnye jaaka dikonopo, dibaga, kgotsa matlapa.
2. Simolola go di bala ka bongwe ka bongwe go fitlha go 180.
3. Beha didirisiwa ka ditlhopha tsa 10 go dira gore go nne motlhofo.
4. Go dira gore go nne motlhofo le ka pela, gape go go thusa go gakologelwa kwa tšhomoeng teng fa o bala.

Tirwana:

Phopholetso ya Setlhopha

Baya dilo fa pele ga barutwana mme ba fopholetsa gore ke didirisiwa tse kae mo mogopong kgotsa mo lebokosong.

Sekao: Baya mogopo wa dimonamone kgotsa nkgwana wa dikonopo fa pele ga barutwana go fopholetsa.

Go Bala ga Setlhopha:

Barutwana ba tla bala ka 5 ba refosana ka taelo ya Morutabana. Morutabana o tla bitsa maina mme ba tla tswela ka go refosana go bala.

Sekao: Motho wa nilha o tla re '5', yo o latelang o tla re '10' mme ba bala jalo go fitlha go 180. Barutwana ba tla bala ka 2, 5 le 10 go fitlha go 200.

Go bala ka bofelo: Jaanong morutabana o tla bala nako e barutwana ba tla balang mo go yona go fitlha go 200. Fa barutwana ba dira phoso tsa tshwanetse go simolola gape. Seno se thusa go tokafatsa go tlhoma mogopolo ya bona mo ga baleng tse tselelele ka bofelo.

Tiro ya tsereganyo

Tirwana

Tsebe 29

1. a. 2; 4; 6; 8;96; 98; 100
b. 3; 6; 9; 12;
c. 4; 8; 12; 16; 20;
2. Moithuti yo o tla tlamelang ka
3. Moithuti yo o tla tlamelang ka

Bokhutlo

Go godisa bokgoni, barutwana ba tshwanetse go nna le seabe mo ditirwaneng tsa letsatsi le letsatsi tsa go bala jaaka go tsaya karolo mo tirogaeng.

Abela barutwana ditluthiso tse di tshwanang tsa phopholetso go netefatsa gore go ikatisa le go tlhaloganya ka tsela e e tlhomameng.

Rotloetsa barutwana go nna le lekwalodikgang la go bala go latedisa kgatelopele ya bone, maano a bone le dikakanyo tsa bone.

Itshekatsheko le Ikgakololo: Buisana ka maano a a dirisitsweng le dikgwetlho tse di lebaneng go rotloetsa kakanyo e e tseneletseng.

Go bala le go peleta

Maikaelelo a thuto:

- **Temogo le Tshupo:** Barutwana ba tla lemoga, ba supa, le go buisa matshwao a dipalo go fitlha go 500 le go itse maina a dipalo go fitlha go 250.
- **Kemedi e e nepagetseng ya Dipalo:** Barutwana ba tla ikatisa go kwala dipalo tsa dipalo tse tharo ka matshwao, go netefatsa go nepagala ga bolengkemedi le go tla dikgopolo tse di fosagetseng tse di tlwaelegileng.

Matseno	
<p>Simolola ka go gatelela botlhokwa jwa go tlhaloganya le go dirisa matshwao a dipalo le maina ka tshwanano.</p> <p>Tlhalosa gore bokgoni jo ga bo botlhokwa fela mo dipalong mme gape le mo ditirwaneng tsa leisatsi le metsatsi, jaaka go reka kgotsa go bolela nako.</p> <p>Gatelela thata gore go buisa le go kwala dipalo ka tshwanano go re thusa go buisana ka tshwanano le go tlhaloganya dilekanyo le ditekanyo.</p> <p>Sekao:</p> <ul style="list-style-type: none"> • Kwala 1 mo botong mme o dire gore morutwana a kwale "nngwe" go yona le yona. • Oketsa ka iketlo go ya kwa dipalong tse di tshwanang le 15 le 159, go bonisa ka fa o ka fetolelang dipalo tse di kwadilweng go nna matshwao ka teng. • Gatelela kemedi e e nepagetseng ya dipalo, bogolosegolo la dipalo (sekao, 203 kgatlhanong le 2003). • Dirisa dikarata tsa bolengkemedi go baakanya diphoso tse di tlwaelegileng, jaaka go tsiediwa ke 304 le 3004. 	
Didirisiwa	Mafoko a mafokong
Dikarata tsa dipalo	Maina a dipalo: Dinomere tse di kwadilweng ka mafoko (sekao., "Makgolo a marara" "bone").
Dikarata tsa bolengkemedi	Boleng kemedi: Boleng ba nomore go ya ka boemo jwa yona mo palong.
Kaelo	
<p>Go aga ka diatla:</p> <p>Kwala palo e le nngwe mo botong mme o katelele morutwana go kwala leina la yona la nomoro.</p> <p>Ka iketlo bopa dipalo tsa dipalo tsa kemedi tse tharo, o dire gore barutwana ba kwale maina a dipalo.</p> <p>Dirisa dikarata tsa bolengkemedi</p> <p>Dirisa dikarata tsa boleng kemedi go msa barutwana lemoga popo ya dipalo le go tlhaloganya lefelo la palo nngwe le nngwe.</p> <p>Ikatiso le Kgatelelo:</p> <p>Katisa barutwana go fetolela dipalo mo mafokong le mo dinomoreng, mme o akaretse dinomere tse di nang le lefela, masomane ka kaelo.</p> <p>Itebaganyo le dipalagalo mme o netefatse gore barutwana ba fitlhelela maikaelelo:</p> <p>Barutwana ba ka tsiediwa ke matshwao a dinomere kgotsa ba se bitse maina a dipalo sentle.</p> <p>Tseregano</p> <p>Dirisa ditšhelela tsa dinomere le dikarata go thusa barutwana go lemoga le go bitsa dinomere sentle.</p> <p>Katisa barutwana ka metlha go buisa le go kwala dipalo ka matshwao le ka mafoko.</p> <p>A barutwana ba tlhalose thulaganyo ya bona ya go lemoga le go buisa dipalo.</p>	

Kemedi ya dipalo ya nnete:

Barutwana ba ka tsiediwa ke bolengkemedi kgotsa go kwala dipalo ka tsela e e fosagetseng, jaaka go kwala 3004 mo boemong ba 304.

Tsereganyo:

Dirisa diitshate tsa bolengkemedi le diboloko tsa motheo tsa lesome go bontsha kafa dipalo di emelang makgolo, masome, le metso ka gone.

Naya dikao mme o ikatise go fetola magareng ga maina a dipalo le matshwao.

Rotloetsa barutwana go tlhalosa bolengkemedi fa ba ntse ba kwala dipalo.

Dikarabo tsa ditirwana tsa buka

Tirwana:

sebe 31

1. Morutabana go botsa barutwana
2. A. 235
B. 412
C. 199

3. a. Makgolo a mabedi le lesome
 - b. Makgolo a mabedi le masome mabedi bongwe
 - c. Makgolo a mabedi le masome a mararo-robedi
- ...kete makgolo a mabedi le masome a matlhano nne.

Tiro ya tsereganyo:

Tiro ya Setlhopha:

Barutwana ba dira sebedi, ba kwale dipalo di le tlhano tsa dipalo tse thano, mme ba fapaanye tiro ya bona. Ba fetolela dipalo tsa bona go nna maina a dipalo, go oketsetsa kutlwisiso le bokgoni jwa go fetola.

Itshekatsheko le Ikgakololo

Buisanang ka ditogamaano le dikgwetlho go tswa mo thutong.

Rotloetsa barutwana go abelana maitemogelo le go tshaba ka go fenywa mathata.

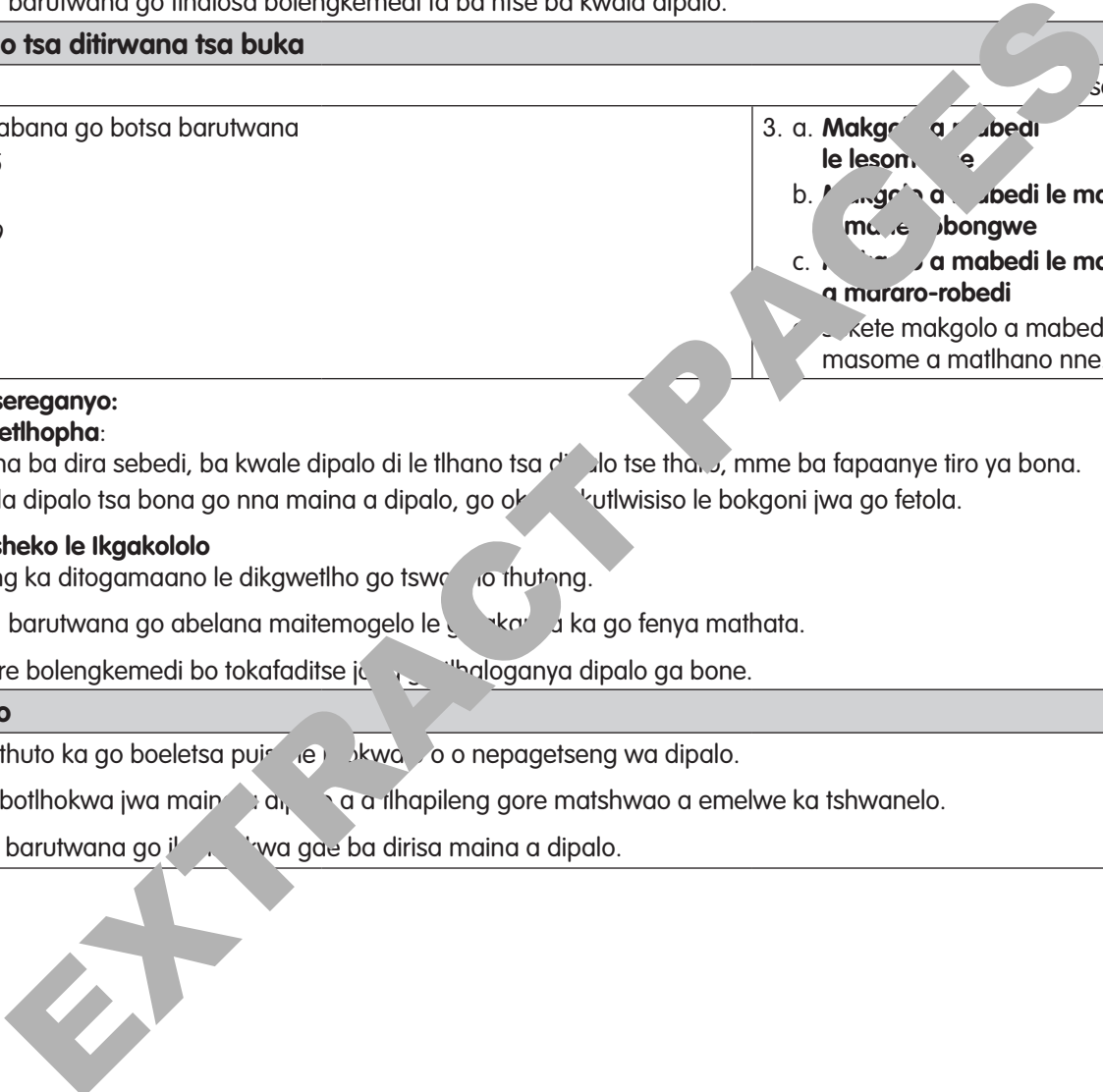
Botsa gore bolengkemedi bo tokafaditse jaaka go tlhaloganya dipalo ga bone.

Bokhutlo

Gatelela thuto ka go boeletsa puo e e bokwano o nepagetseng wa dipalo.

Gatelela botlhokwa jwa maina a dipalo a tlhapileng gore matshwao a emelwe ka tshwanelo.

Gakolola barutwana go ikatise jwa gae ba dirisa maina a dipalo.



Go tshwantshanya dipalo

Maikaelelo a thuto:

- Bapisa didirisiwa o dirisa mareo a a tshwanang le “go feta,” “kwa tlase ga,” “bontsi,” le “bonnye.”
- Rulaganya dikokoanyo go tswa go bontsi go ya go bonnye le go tswa go bonnye go ya go bontsi.
- Dirisa matshwao (<, >, =) go bapisa dipalo go fitlha go 99.

Matseno	
<p>Mogopolo: Barutwana ba tshwanetse go lemoga le go dirisa matshwao a go bapisa (<, >, =) dipalo go ya go fitlha go 99.</p> <p>Go Anela Kgang: Bala kgang ka ga Mme Lila yo o bapisang palo ya diapole le dinamune tse a nang le tswa e.</p> <p>Tlhalosa gore Mme Lila o dirisa matshwao go bontsha gore ke palo efe e kgolo e nnye.</p> <p>Dirisa tlhaloso ya Kwena: letshwao la kgolo mo (>) le tswana le molomo wa kwena o o jang palo e kgolo, mme letshwao la nnye mo (<) ke molomo wa kwena o o jang palo e nnye.</p> <p>Sekao: Tshwantsha dinomore tse pedi o dirisa matshwao. Sekao 1: 33 > 32 Sekao 2: 78 > 66</p> <p>Didirisiwa tsa Thuto: Supa matshwao a kwena mo botong mme a balose ka fa a supang palo e kgolwane ka teng.</p>	
Didirisiwa	Mafoko a mašwa
Dikarata tsa dinomore Go ikatisa le go tshwantshanya ka pono.	<p>Kgolo mo/Tona mo (>): Palo e e kafa molemeng wa letshwao la > e kgolo bogolo go feta palo e e ka fa mojenng.</p> <p>Nnye mo/Fetwa ka (<): Palo e e kafa molemeng wa letshwao la < e nnye go feta palo e e kafa mojenng.</p>
<p>Kaelo: Ditaelo kgato-ka -kgato: Kwala dikao mo botong, jaaka “50 le 2 > 68.” Dirisa dikarata tsa dipalo go aga seo mo tlhaloganyong sentle.</p> <p>Go Itebaganya le Diketsa tse: Barutwana ba ka nna ba anakanng matshwao a > le < mme ba a dirisa ka tsela e e sa siamang.</p> <p>Tsereganyo: Dirisa tshwantshanya ya kwena o o (>) ke le molomo wa kwena o o lebaganeng le palo e kgolo ka gone o “batla” go ja palo e kgolo.</p> <p>Bontsha le dikao tse di tlhapileng, jaaka “7 > 3” le “2 < 5,” mme o dire gore barutwana ba itirele dipapiso tsa bona tsa dinomore.</p> <p>Go Latelela Dinomore: Barutwana ba ka nna ba nna le bothata jwa go rulaganya dipalo sentle go tswa mo go tse dinnye go ya kwa go tse dikgolo kgotsa go tswa mo tse dikgolo go ya go tse dinnye.</p> <p>Tsereganyo: Neela barutwana ditirwana tsa diatla go rulaganya didirisiwa kgotsa dikarata.</p> <p>Simolola ka dipalo tse dinnye mme ka iketlo o oketse selekanyo fa barutwana ba ntse ba gola mo kitsong le go itshepa.</p> <p>Go tshwanstshanya dirisiwa tse di kgobakantsweng: Barutwana ba ka bapisa tse ba di phuthileng go ya ka ponagalo go na le selekanyo.</p>	

Tsereganyo:

Gatelela go bala setlhopha sengwe le sengwe go tlhola nepagalo

Dirisa dilo tse di tshwaregang mme o ikatise go aga ditlhopha le go bala go netefatsa gore barutwana ba tlhaloganya kgopolo ya bontsi.

Dikarabo tsa ditirwana tsa buka

Tirwana

Tsebe 33

- | | |
|------------------------------|-----------------------|
| 1. $2 < 5$ | 2. $5 > 2$ |
| 3. $17 > 10$ | 4. $10 < 17$ |
| 5. $32 > 27$ | 6. $95 > 59$ |
| 7. $112 < 121$ | 8. $167 < 176$ |
| 9. $176 > 167$ | 10. $45 = 40 + 5$ |
| 11. $40 + 5 = 40 + 5$ | 12. $45 - 5 < 40 + 5$ |
| 13. $200 - 74 > 96 + 6 + 24$ | |

Tiro ya tsereganyo:

Ikatiso ya go Dira:

Biletsa barutwana kwa botong go bapisa dipara tsa dipalo mme ba dirise matshwao go bontsha dikarabo tsa bona.

Ikatiso e e Kaelwang:

Kgaoganya barutwana ka sebedi mme o ba neele ditlhopha tsa dipalo go di bapisa.

Dira gore ba dirise dikarata tsa dipalo le matshwao go supa dipapiso tsa bona.

Tiro ya Setlhopha:

Barutwana ba ba tlhokang tshegetso ba ka dirisa dilo tse di tshwareng go bapisa ditlhopha.

Dira gore barutwana ba bale dilwana mme ba dirise matshwao ya kwena go bona gore ke setlhopha sefe se se nang le dilwana tse dintsi kgotsa tse di kwa tlase.

Barutwana ba ba fa godimo:

Neela ka dipapiso tsa dipalo tse di raraaneng, tse di tshwareng o dirise ditharaano tsa maina a dinomere go na le matshwao a dinomere go bapisa.

Bokhutlo

Ikgopotso:

Gatelela tiriso ya matshwao go bapisa matshwantshanyo ya kwena go netefatsa gore barutwana ba tlhaloganya gore ba dirise letshwao le tshwareng.

Tirogae:

Neela barutwana ditirogae tse ba ka bapisang le go rulaganya dipalo le ditlhopha. Ba neele gape dipotso tsa ikatiso tse ba tla dirisa matshwao go bapisa dinomere le go rulaganya ditlhopha ka bogolo le bonnye.

Go aroganya dipalo tse dikgolo

Maikaelelo a thuto:

- Arola dipalo tsa dipalo tse pedi go nna dikatsanetswa tsa masome le metso go fitlha go 99.
- Supa le go itse boleng jwa nomoro nngwe le nngwe mo dipalong tsa dipalo tse pedi.
- Farologanya bolengkemedi le boleng jwa dipalo.

Matseno	
<p>Simolola ka go tlhalosa bolengkemedi le boleng. Bolengkemedi bo tlhalosa boemo jwa nomoro mo palong (sekao, masome kgotsa metso), fa boleng bo supa se palo nngwe le nngwe e se emelang fa e arolwa. Netefatsa gore barutwana ba tlhaloganya dipharologanyo tseo.</p> <p>Sekao: Kwala palo 56 mo botong. Tlhalosa: Bolengkemedi: 5 e mo boemong ba masome Value: 5 e emetse 50 (masome a 5), mme 6 e emetse 6 (metso). Dira sekao se sengwe: Mo 34, 3 e mo boemong ba masome (boleng ba 30) mme 4 e mo boemong ba masome (boleng ba 4).</p>	
Didirisiwa	Mafoko a mašwa
Dikarata tsa bolengkemedi	<p>Bolengkemedi: Boleng ba nomoro mo palong (sekao, masome, metso). Boleng: Boleng ba nomoro nngwe le nngwe e arolswa (sekao, 70 e le ya nomore 7 mo go 78).</p>
Kaelo	
<p>Itsise Ditlhaloso: Kwala ditlhaloso tsa bolengkemedi le boleng mo botong. Bolengkemedi: Boemo jwa nomoro mo palong. Boleng: Boleng jwa nomoro nngwe le nngwe e arolswa. Go Itebaganya le Diketsaetsego: Go tlhakannngwa tlhogo ke bolengkemedi le boleng. Barutwana ba ka tlhakatlhakanya bolengkemedi le boleng jwa palo. Ketsaetsego ka go aroganya: Barutwana ba ka se arole palo sepe ka masome le metso. Tsereganyo: Katisa ka dikao tsa nomoro e ditirweng tsa diatla. Jaaka o ka arola palo o dirisa dikarata tsa bolengkemedi le didirisiwa tse dingwe. Diphoso tsa go balela boleng. Go balela boleng ba nomoro ka go fosagala.</p>	
Dikarabo tsa answara tsa buka	
<p>Tirwana Tsebe 36</p> <p>1. $38 + 22 = 60$ (nokgwa wa sethalo) 2. a. $24 + 45 = 69$ b. $56 + 16 = 72$ c. $70 + 11 = 81$ d. $42 + 53 = 95$ e. $61 + 26 = 87$ f. $64 + 32 = 96$</p>	
Bokhutlo: Motshameko wa patlo: Lebelo la dipalo	
<p>Boeletsa ka go gatelela ka fa o ka supang bolengkemedi ka teng le go bala boleng jwa nomoro nngwe le nngwe mo palong. Gatelela botlhokwa jwa go tlhaloganya bolengkemedi jwa go arola bolengkemedi ba palo ka tshwanelo. Neela barutwana dithutiso tsa go ikatisa tsa tirogae, go ba thusa go lemoga masome le metso, le go netefatsa gore barutwana ba kgona go supa bolengkemedi ka nepagalo.</p> <p>Tirwana Tsebe 37</p> <p>$20 - 12 = 8$</p>	

Go fenyha ka dipalo

Maikaelelo a thuto:

- Rarabolola ditharaano mo tirisong mme o tlhalose ditharabololo tsa go tlhakanya le go ntsha.
- Rarabolola ditharaano tsa madi tse di akaretsang dipalogo tlhe le poelo.
- Rarabolola ditharaano mo tirisong mme o tlhalose ditharabololo tse di akaretsang go tlhakanya ka poeletso mo go isang kwa katisong.

Matseno	
<p>Itsise barutwana ka ditiragalo tsa mmatota tse ba tlhokang go dirisa go tlhakanya, go ntsha le go boela madi.</p> <p>Tlhalosa kafa dikgopolo tseno tsa dipalo di leng karolo ya botshelo jwa letsatsi le letsatsi ka tena jaaka go tseka, go abelana dilwana kgotsa go bala didirisiwa.</p> <p>Go Rarabolola Ditharaano ka go tlhakanya le go ntsha Kgato ka kgato: $50 - 35 = 15$. Bontsha se mo moleng wa dipalo ka go boela morago. Tlotla ka maano a a farologaneng, a a tshwanang le go potologa go ya go 10 le le tshwanang ka bonako.</p>	
Didirisiwa	Mafoko a mašwano
Melapalo, dibadi, madi a motshameko, le didirisiwa tsa thuto tsa go tlhakanya le go ntsha.	<p>Go tlhakanya: palogotlhe, kakaretso, koketsego, go feta</p> <p>Go ntsha: palogotlhe, tlase, sesadi, nnye, ntsha</p> <p>Palogotlhe, Kakaretso, Koketsego, Phokotsego.</p>
<p>Kaelo Bontsha barutwana di thekeniki tsa go tlhakanya le go ntsha ka dirisa ditogamaano di tshwana go aga/go thuba dipalo le go dirisa mela ya dipalo.</p> <p>Ditharaano tsa madi: Itsise barutwana mokgwa wa atametseng o o ka dirisiwa go fefotsha segolo thata mo dipalong tsa tlhogo.</p>	
Dikarabo tsa ditirwana tsa buka	
Tsebe 38	
<p>1. $(20 + 40) + (4 + 5)$ = $60 + 9$ = 69</p>	<p>2. $(60 + 30) + 9$ = $90 + 6$ = 96</p>
Tsebe 39	
<p>Tirwana 2</p> <p>1. 10 go feta 697 ke 707 le 100 go feta 697 ke 797.</p> <p>2. 10 go feta 235 ke 245 le 10 go feta 235 ke 335.</p> <p>3. 10 kwa tlase ga 587 ke 577 le 100 kwa tlase ga 587 ke 487.</p> <p>4. 10 kwa tlase ga 1 000 ke 990 le 100 kwa tlase ga 1 000 ke 900.</p>	
<p>Tiro ya tseregano, Ikatiso ya Morutwana wa Nosi: Laletsa barutwana ba tlhokang thuso kwa tafoleng go ba thusa. Go ka dirisiwa madi a motshameko go thusa go tlhaloganya le go bokotsa ketsaetsego.</p> <p>Go rutana: Barutwana ba ba nang le bokgoni jwa go tlhakanya, go ntsha le go dira ka dipotso tsa madi ba tla nna le seabe mo tirwaneng ya go kokeletso.</p> <p>Tirwana ya Katoloso: "Fa ditsala tse tharo di reka dilwana tse di farologaneng tse di jang R25, R37, le R48, ba dirisa bokae mmogo? Ba tla bona poelo e e kana kang fa ba ka duela ka R200? Dira ditirwana tse dingwe tse di tla gwetlhang barutwana go akanya.</p>	
Bokhutlo	
<p>Gatelela thuto ka go boeletsa dintlhakgolo tse di mo botong.</p> <p>Barutwana ba tla rotloediswa go tsaya karolo ka go tlhalosa ka moo ba atametseng le go rarabolola ditharaano ka teng.</p>	

Go fenyha ka dipalo (2)

Maikaelelo a thuto:

- Rarabolola ditharaano mo tirisong mme o tlhalose ditharabololo tsa go tlhakanya mo go boaboeleliwang mo go isang kwa katisong.
- Rarabolola ditharaano tse di akaretsang go aga ditlhopha ka go lekana le go abelana mo go isang kwa karoganong, go akaretsa le masalela.
- Rarabolola ditharaano tse di akaretsang go abelana mo go isang kwa dipalophatlong.

Matseno	
<ul style="list-style-type: none"> • Agela mo dintlheng tse di fetileng, go bontsha ka moo go tlhakanya go isang kwa katisong le go aga ditlhopha ka go lekana le go isa kwa karoganong. • Itsise dipalophatlo o dirisa go abelana. <p>Ditlhopha tse di lekanang tsa karoganyo (ka sesala)</p> <ul style="list-style-type: none"> • Boemo: "Dimonamone tse 12 di aroganwa ke barutwaba ba le 5. Mongwe o mongwe o bona dimonamone di le 2, go setse di le 2 (masalela)." • Go abelana le dipalophatlo: "Ditsala di le 3 di abelana dinamune di le 2, mongwe le mongwe o bona dinamune di le 2 tse di feletseng le 1/2 ya tse 2 tse di setseng." • Dirisa se go itsise dipalophatlo mo bokaong jwa lefatshe la nnete. 	
Didirisiwa	Mafoko a mašwa
Dibadi, didirisiwa tsa thuto, le manathwana a dipalophatlo.	Menaganya: palo gabedi Katiso, Karoganyo, Ditlhopha, Disala, Dipalophatlo.
<p>Kaelo Karoganyo le masalela: Supa ka go dirisa dibadi tsa tshwantsho go bontsha ditlhopha tse di lekanang le masalela.</p> <p>Go itebaganya le diphosagalo: Go dumela gore katiso ke fela go tshwara dipalo ka tlhogo.</p> <p>Tsereganyo: Gatelela dikgolagano tsa go itebaganya go atisa ka ditirwana tsa diatla. Tlhalosa karogano kgotlhanong le abelano ka go itebaganya le masalela. Amanya dipalophatlo le masalela a letsatsi le letsatsi jaaka go abelana dijo.</p>	

Dikarabo tsa ditirwana tsa buka		Tsebe 40
1. $7 + 6$ $7 + 3 + 3$ $10 + 3 = 13$	3. $19 - 8$ $18 + 1 - 8$ $9 + 9 + 1 - 8 = 11$	5. $9 + 8$ $9 + 4 + 4$ $13 + 4 = 17$
2. $8 + 7$ $8 + 3 + 3 + 1$ $11 + 4 = 15$	4. $13 - 6$ $12 + 1 - 6$ $6 + 6 + 1 - 6 = 7$	6. $17 - 8$ $16 + 1 - 8$ $8 + 8 + 1 - 8 = 9$
<p>Tiro ya tsereganyo: Ikatiso ya Morutwana ka Nosi: Barutwana ba ba tlhokang tshegetso e e oketsegileng ba tla dira le morutabana go ikatisa go atisa (tlhokanya gangwe le gape) le go arola (masalela). Morutabana o tla dirisa didirisiwa tse di jaaka dibadi, ditlhalo tse di palopha, kgotsa didirisiwa tsa thuto go ba thusa.</p> <p>Jaanong a re leke go atisa: Kaelo eno e tla thusa barutwana go akanya le go tlhologanya dikgolagano magareng ga go tlhakanya le go atisa, mmogo le go arola le masalela.</p> <p>Go rutana: Barutwana ba ba itlhomileng pele ba tla nna le seabe mo ditirwaneng tsa kago e nna aaga ditlhophha le go ikatisa ka sesala.</p> <p>Tirwana ya Katoloso: "Setlhophha sa bana ba le 7 se abelana dinamune di le 23 ka go leka go rwana mongwe le mongwe o bona dinamune di le kae, mme go tla sala di le kae?"</p>		
<p>Bokhutlo Soboka thuto ka go boeletsa dikao le dikgopolo tse di mo bokhutlo o laletse barutwana go thusa mo go araba dipotso.</p>		



Go fenyha ka dipalo (3)

Maikaelelo a thuto:

- Rarabolola dipalo tsa go tlhakanya le go ntsha go fitlha go 99
- Ikatisetse dikgolagano tsa dipalo go fitlha go 20
- Tlhaloganya kemedi ka masome le metso
- Atisa dipalo 1 go ya go 10 ka 2, 3, 4, le 5
- Arola dipalo go fitlha go 50 ka 2, 5, le 2. 10

Matseno	
<p>Simolola kamuso ka go gatelela kitso ya o tlhakanya, go ntsha, katiso, le karoganyo.</p> <p>Go dirisa dikao tsa nnete: Amanya go tlhakanya le go ntsha le dilo tse di teng mo botshelong.</p> <p>Gatelela ditiragatso tsa Motheo: Gatelela gore go tlhaloganya go tlhakanya, go ntsha, dipopo tsa dinomore go gatelela le tswana motheo o o itekanetseng wa dipalo.</p>	
Didirisiwa	Mafoko a mabalo
Dikarata tsa dipalo	Atolosa: Kgaoganya
Kaelo	
<p>Go tlhakanya le go ntsha go ya go 80 le 99: Dirisa dikarata tsa molapalo go supa gore go ya mojeng ke fa o tlhakanya mme go ya molemeng ka fa o ntsha.</p> <p>Ikatise ka dipopo tsa dipalo go fitlha go 20: Dirisa dikarata tsa dipalo go tlhakanya go fitlha go 20 mme go tlhamalatse ditsiatsiego tse di ka nnang teng</p> <p>Tlhaloganaya bolengkemedi ka go aroganya dipalo ka masome le metso: Supa katoloso ya dipalo o dirisa didirisiwa tsa thuto jaaka maboloko a masome le go tlhalosa boleng ba nomore nngwe le nngwe.</p> <p>Atisa dipalo tsa 1 go ya go 10 ka 2, 3, 4, le 5: Dirisa didirisiwa tsa thuto go supa kamano ya katiso le go tlhakanya ga poeletso.</p> <p>Aroganya dipalo go ya go 50 ka 2, 5, le 2. 10: Ruta go arola ka go abelana le go nngang le go kgaoganya dilo tsa nnete ka diithopha.</p>	

Dikarabo tsa ditirwana tsa buka		Tsebe 41
1. a. $45 + 32$ $40 + 5 + 30 + 2$ $70 + 8 = 72$ b. $78 - 21$ $70 + 8 - 21$ $40 + 8 + 30 - 21$ $40 + 8 + 9 = 57$ c. $56 + 13$ $50 + 6 + 10 + 3$ $60 + 9 = 69$	d. $91 - 17$ $90 + 1 - 17$ $70 + 1 + 20 - 17$ $70 + 1 + 3 = 74$ e. $34 + 25$ $30 + 4 + 20 + 5$ $50 + 9 = 59$ f. $63 + 29$ $60 + 3 + 20 + 9$ $80 + 12 = 92$	g. $82 + 14$ $80 + 2 + 10 + 4$ $90 + 6 = 96$ h. $70 - 36$ $30 + 40 - 36$ $30 + 4 = 34$ i. $47 + 26$ $40 + 7 + 10 + 6$ $60 + 13 = 73$
j. $55 - 18$ $50 + 5 - 18$ $30 + 5 + 20 - 18$ $30 + 5 + 2 = 37$	2. a. $56 + 14 = 70$ b. $73 - 27 = 46$ c. $39 + 18 = 57$ d. $80 - 65 = 15$ e. $35 + 25 = 60$ f. $47 - 18 = 29$	3. a. $20 + 11 = 20$ b. $10 + 10 = 20$ c. $20 - 7 = 13$ d. $5 + 15 = 20$ e. $13 + 7 = 20$ f. $2 + 18 = 20$
<p>Tiro ya tsereganyo: Ikatiso ka Sebedi: Barutwana ba ka itakisa ka sebedi mme wa ba neela nako e e lekanyetsweng.</p> <p>Tshegetso ya setlhotshwana: Neela barutwana ba ba tlhokang tshegetso didirisiwa tsa tse di tla ba thusang go fatlhoga.</p> <p>Metshameko ya Dipalo: Metshameko e tshwana le "Bingo" kgotsa "motshameko wa kgopolo" e ke dirisiwa mo matsenong.</p> <p>Go Rutana: Rotloetsa barutwana go dira mmogo le go rutana.</p>		
<p>Bokhutlo</p> <p>Go Ikgopotsa Megopolo ya Botlha: Sosobanya dintlha tsa go tlhaka le go fitlha go 99, popo ya dipalo go fitlha go 20, go tlhaloganya bolengkemedi, katiso ka 2, 3, le 5, karoganyo ka 2, 5, le 10.</p>		

Bagaka ba dipalo

Maikaelelo a thuto:

- Rarabolola dipalo tsa go tlhakanya le go ntsha go fitlha go 80 le 99
- Ikatisetse go tshwaraganya dipalo go ya go 20.
- Atisa dipalo 1 go ya go 10 ka 2, 3, 4, le 5.
- Arola dipalo go fitlha go 50 ka 2, 5, le 10.

Matseno	
<p>Nako ya Kgang: Buisa "Ditiragalo tsa Tshingwana ya ga Thusi" le barutwana. Botsa barutwana gore a ba kile ba jala dipeo. Se se thusa go tlhama bokao jo bo amanang le setshwantsho ka ga go jala dipeo mo mabone e e rarologaneng.</p>	
Didirisiwa	Mafoko a mašwa
Dikarata tsa dinomere Dibadi	Katiso: E bitswa gape go wena go tlhakanya ka poeletso Karoganyo: Go kgaoganya ka dikarolo tse di lekanang kgotsa ditlhopha.
Kaelo	
<p>Katiso le Karoganyo: Ruta barutwana gore katiso ke tlhakantsho e e boaboelediwana. Sekao, 4×5 e ka balelwa jaaka $5 + 5 + 5 + 5 = 20$. Gape, tlhagisa karogano jaaka go aga ditlhopha le go abelana ka dikelana. Sekao, go arola 50 ka 5 go raya gore ditlhopha ke kae tse di kantsenang mo go 50. Kgaoganya barutwana ka ditlhopha. Dira dikao tse dingwe jaaka. "Ke na le mela e le 5 ya 6." Ke jetse dipeo di le kae?" "Ke na le dipeo di le 10 mm ke batla go di kgaoganya ka ditlhopha tsa di le 5." Ke na le ditlhopha di le kae?" Setlhopha sa ntlha se se balelang sentlha sa fenyane.</p>	
Dikarabo tsa ditirwana tsa buka	
<p>Tirwana: Tsebe 44</p> <p>1. a. $6 + 6 + 6 = 18$ b. $4 + 4 + 4 + 4 + 4 = 20$ c. $5 + 5 + 5 + 5 + 5 = 25$ d. $3 + 3 + 3 + 3 + 3 + 3 + 3 = 21$ e. $2 + 2 + 2 + 2 + 2 + 2 + 2 = 16$ f. $4 + 4 + 4 + 4 = 16$ g. $3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 = 36$ h. $9 \times 2 = 18$ i. $6 \times 2 = 12$ j. $5 \times 15 = 30$</p>	
2. a. $40 \div 5 = 8$ b. $30 \div 10 = 3$ c. $24 \div 2 = 12$ d. $50 \div 10 = 5$ e. $40 \div 10 = 4$ f. $30 \div 2 = 15$	3. a. $4 \times 5 = 20$ b. $3 \times 7 = 21$ c. $9 \times 2 = 18$ d. $5 \times 6 = 30$ e. $4 \times 4 = 16$ f. $10 \times 4 = 40$
4. a. $40 \div 5 = 8$ b. $24 \div 2 = 12$ c. $30 \div 2 = 15$ d. $50 \div 10 = 5$ e. $30 \div 10 = 3$ f. $40 \div 5 = 8$	
Bokhutlo	
<p>Tirwana Tsebe 45</p> <p>1. a. $\frac{1}{8}$ 2. a. $\frac{4}{8} = \frac{1}{2}$ 3. a. $A = \frac{1}{2}; B = \frac{3}{4}; C = \frac{2}{3}; D = \frac{3}{5}$ b. 3 b. 4 b. $A = 1; B = 3; C = 3; D = 3$ c. 3 c. 4 c. $A = \frac{1}{2}; B = \frac{1}{4}; C = \frac{1}{3}; D = \frac{2}{5}$ d. 4 d. $\frac{4}{5}$ e. $\frac{2}{4} = \frac{1}{2}$</p> <p>4. 6 Sweets each 5. 42</p>	

Go bolela nako

Maikaelelo a thuto:

- Go bolela nako.
- Bolela nako ya diura tsa 12-ka diura, seripa tsa ura, kotara ya ura, le metsotso mo tshupanakong ya analoko le dijithale.

Matseno	
Simolola ka go botsa barutwana ka dithulaganyo tsa bona tsa letsatsi: O tlhapa meno leng? (moso, tshokologo, bosigo) O ja sefithlo leng? (moso, tshokologo, bosigo) Ba fetsa leng kwa sekolong? (moso, tshokologo, bosigo) Ba robala leng? (moso, tshokologo, bosigo) Ba itsise ka mogopolo wa nako o dirisa analoko e e nang le dinaka go ba supegets gore nako e balwa jang	
Didirisiwa	Mafoko a nako
Tshupanako ya analoko (ya nnete kgotsa ya mafaratlhatlha) Ditshupanako tsa pampiri (barutwana ba di itirela) https://www.youtube.com/watch?v=qoyXDbkTCjg	Nako ya analoko ka didirisiwa se se supang nako ka di...
Kaelo	
Ruta barutwana go dira ditshupanako tsa analoko go tswa go dipoleiting tsa pampiri mme o ba dire ka sebedi go supa le go buisa dinako. Go itebaganya le Diketsaetsego: Go tsiediwa ke diura le metsotso: barutwana ba ka nna ba tlhakanya dinaka tsa diura le metsotso kgotsa diyuniti tse di di emetseng. Go buisa nako ya analoko le ya dijithale: Barutwana ba ka nna le matsapa a go fetolela nako go tswa mofuteng o mongwe go ya go o mongwe. Ditsibogo tsa go Ruta: Dirisa didirisiwa tsa thuto jaaka go dirisa tsa dipoleiti tsa dipampiri go dira gore kgopolo ya nako e tshwarege sentle, mme barutwana ba tshwelelletlha gore a ba a tlhaloganya e bile ba kgone go bontsha nako.	
Dikarabo tsa ditirwaneng tsa nako	
Tirwana	Tsebe 49
1. a. ura ya boroboro b. kotare ya ura mo go gaura ya borataro c. seripa ya ura mo go ga ura ya bone d. kotare ya ura mo go ga ura ya bosupa 2. Sripa sa ura mo go ga 3 (b) 3. B	
Bokhutlo	
Sekaseka gore jang: Kamuso e thusitse barutwana go tlhaloganya go buisa ditshupanako tsa analoko le tsa dijithale ka go dirisa ditshupanako tse ba di itireseng.	

Go dira ka khalentara

Maikaelelo a thuto

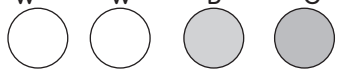
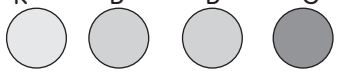
- Bala matlha a a mo khalantareng, tshwaya malatsi a botsalo, ditiragalo tsa naga, le malatsi a bokhutso mo dikhalantareng.

Matseno	
Itsise kgopolo ya dikhalentara: Kopa barutwana go supa matlha a a botlhokwa (seka, letsatsi la bona la matsalo, malatsi a boikgato). Bontsha gore o ka bona jang matlha ano mo khalantareng. O fetsa sekolo leng mo letsatsing? (mosong, maitseboa, bosigo). O robala leng? (mosong, maitseboa, bosigo).	
Didirisiwa	Mafoko a mašwa
Khalentara	Khalentara: tšhate e e supang malatsi a beke, le dikgwedi tsa ngwaga.
Kaelo	
Tlotla ka boikaelelo jwa dikhalentara le kafa di re thusang ka gone. Tlalethe malatsi. Dirisa khalentara go bontsha barutwana gore ba ka bona jang matlha a a leng le go rulaganya ditiragalo. Go itebaganya le Diketsaetsego Barutwana ba ka nna le kgweitho ya go sa tlhaloganyeraka fa malatsi a khalentara a rulagantsweng ka teng. Go bala Malatsi Barutwana ba ka nna le matsapa a go bala malatsi sentle mo khalantareng. Ditsibogo tsa go Ruta Letla barutwana go tshwaya malatsi a bona a matsalo mo khalantareng mme le tswelele ka go buisana ka tsela e ntle ya go dirisa khalentara.	
Dikarabo tsa ditirwana tsa buka	
Tirwana 1: 1. a. Malatsi a le 31 b. Malatsi a Latshipi a le 5 c. Kgwedi e fela ka mabedi d. Moranang e. Tlhakole f. Ka Labo g. Letsatsi la Ditirwanelo tsa Setho	Tsebe 50
Tiro ya barutwana: Tiro ya barutwana ka nosi: Biletsa barutwana ba ba nang le matsapa kwa tafoleng ya gago go ba thusa, mme barutwana ba ba ithomileng kwa pele ba neelwe ditirwana tsa tlaleletso.	
Bokhutlo	
Sekaseka gore barutwana ba tlhalogantse go le kae le gore didirisiwa tsa thuto di ba tswetse mosola jang. Morutabana o tlhoka go buya khalentara le go yuta barutwana dikgedi tsa ngwaha le malatsi a beke.	

Dipaterone tse di kgathisang le dipopego

Maikaelelo a thuto

- Dipaterone tsa Jeometiri
- Kopolola, atolosa, mme o tlhalose dipaterone le dipopego tse di motlhofo.
- Dipaterone tse mo go tsona dipopego di boelediawang.

Matseno		
Buisa kang ka ga Nkhata le Azra ba phutha dilwana tse di tshwanang le dikgapetla, matlapa le dithubane. Itseise barutwana ka go dira dipaterone ka go dirisa dithibo tsa mabotlolo tse di mebalabala kgotsa diboloko tsa go aga.		
Dikao: Sedirisiwa se se tla dirisiwang go simolola go tlhama paterone dikgapetla, matlapa, dithupa dithibo tsa lebotlolo kgotsa diboloko tsa go aga ka mebala e e farologaneng botsa barutwana go itirela paterone ya mmala wa bona ba dirisa diboloko kgotsa dithibo tsa lebotlolo.		
Didirisiwa	Mafoko a mašwa	
Dithibo tsa lebotlolo Diboloko tsa mebalabala	Paterone ya didirisiwa, dipopego, kgotsa ditswantsi tse di boaboelediawang.	
Kaelo		
Tlhalosa dipaterone tsa jometri mme o dire gore barutwana ba itirele dipaterone ba dirisa didirisiwa tse di neetsweng. Dira gore barutwana ba tshwantshe le go tlhalosa dipaterone tsa bona mo pampiring.		
Go itebaganya le Diketsaetsego: Temogo ya Dipaterone: barutwana ba ka nna ba simolola temoga le go atolosa dipaterone ka tshwanelo. Go tlhaloganya Poeletso: barutwana ba ka nna ba go itlhatla go tshegetsa le go tswaledisa dipaterone tsa bona sentle.		
Ditsibogo tsa go Ruta: Dirisa dikao tse di bonwang le dipaterone tsa bona go nitamisa kgopolo ya dipaterone. Rotloetsa barutwana go tlhalosa dipaterone tsa bona le gore ba di atolositse jang go tokafatsa kutlwisiso		
Dikarabo tsa ditirwaneng tsa tsebe		
Tirwana 1:	Tsebe 52	
1. sethibo se sehlano se le 1, dithibo tse 2 tsa botala ba loapi le sele sengwe sa botala ba tlhaga 2. Barutwana ba tshwantshe go kgona go buisana, fa morutabana a etse tlhoko puisano le go gatelela dintha tsa bothlelwane tsa dipaterone tsa jometri. 3. Mebala, bogolo le tatelano di farologane.		
Dipharologano	Abale	Momo
Mmala	khibidu	Tshweu
Bogolo	Bogolo ba sethibo ga bo a bolelwa	Dithibo tse dinnye le se segolo mo moleng wa tshimologo
Tatelano	121 w w B G 	211 211 211 R B B G 

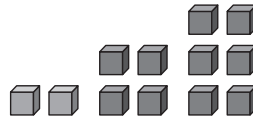
Tirwana 2

Tsebe 53

1. a. Paterone e simolola ka diboloko tse pedi tse di pududu, e latelwa ke diboloko tse nne tse di botala ba tlhaga mme kwa bofelong, diboloko tse thataro tse dikhibidu .
- b. Barutwana ba na le karabo. Karabo e tshwanetse go bontsha fa ba tlhaloganya potso. Ba tlhalose tatelano, mmala kgotsa paterone e ba e lemogileng.

c.

Dipatorone	1	2	3	4	5
Palo ya diboloko	2	4	6	8	10



Paterone e gola ka 2 nako le nako

2. a. Paterone e tla atoloswa ka dikwere tse pedi le sediko se le sengwe nako le nako go simolola ka dikwere tse pedi le sediko fa gare ga tsona.
- b. Dikarabo di ka farologana, fela karabo ya barutwana e tshwanetse go bontsha gore ba tlhaloganya gore tatelano e tshwanetse go latela mokgwa wa 'dikwere tse pedi le sediko fa gare' go tswa mo go '2a' gore ba kgone go kopolola le go atolosa. Dipopego tse di latelane tse tsa nna disekwere di le 8 le didiko di le 4

Bokhutlo

Tshwantsha dipaterone di le mmalwa tsa jometeri mo botong mme dipope barutwana mo ditlhopheng tsa bona go tla mo botong go feleletsa dipaterone tsa jometeri.

Se se tla fa morutabana tshono ya go nna go tlhaloganya.

Boeletsa dintlha tse dingwe go gakolola barutwana.



Go batla dipopego mo tikologong ya rona

Maikaelelo a thuto

- Supa le go tlhalosa didirisiwa tsa 3D go ya ka matlhakore a a tlhamaletseng, matlhakore a a kgolokwe, potokwe, le sereledi.
- Mefutafuta ya didirisiwa tsa 3D – mabokoso, dibolo, diselennere.
- Puo ya maemo: kwa pele, go bapa, mo teng.
- Tlhama le go tlhalosa dipaterone tsa gago.

Matseno	
<p>Itsise didirisiwa tsa 3D o dirisa dilwana tsa matsatsi otlhe. (sekao, dibolo, mabokoso).</p> <p>Tlotla le go bontsha dikarolo tse di jaaka matlhakore a a tlhamaletseng, matlhakore a a kobegileng go bidikama, le go relela.</p> <p>Sekao: Dipitsa le dipane, mabotlolo a metsi le dijana, dibolo, mabokoso le dipopegotaese di thusa go tSamaisa ditiro tsa rona go letsatsi le letsatsi.</p>	
Didirisiwa	Mafoko a ašwa
Didirisiwa tsa letsatsi le letsatsi (bolo ya kgwele ya dinao, nkgwana, popegotaese ya ga Rubik)	Didirisiwa tsa 3D: didirisiwa tse di matlhakore mararo (seleele, bophara, bogodimo).
Kaelo	
<p>Laela barutwana go kgaoganya didirisiwa go ya ka dipopego (matlhakore a a tlhamaletseng, matlhakore a a kobegileng, potokwe, thelelo).</p> <p>Go itebaganya le Diketsaetsego: Go tlhaloganya dipopego tsa 3D: barutwana ba tlhakatlhanya dipopego le diponagalo tsa 2D le 3D. Go kgaoganya didirisiwa: barutwana ba ka tšola go kgaoganya didirisiwa go ya ka dipopego tsa tsona</p> <p>Ditsibogo tsa go Ruta: Dirisa dilwana tse di farologanang go supa dipopego tsa tsona. Rotloetsa barutwana go tlhaloganya le go shwantsanya didirisiwa ba dirisa mafoko a bona.</p>	
Dikarabo tsa ditirwana tsa rona	
<p>Tirwana</p> <p>1. Kgolokwe Popegotaese Selennere Poriseme ya khutlonnetsepa</p> <p>2. Matlhakore a a sephaphathi: popegotaese, poriseme ya khutlonnetsepa, botlase ba selennere. Matlhakore a a kobegileng: kgolokwe, selennere. E e ka pitikologang: kgolokwe, selennere. E e ka relelang: popegotaese, poriseme ya khutlonnetsepa, selennere. E ka tlhatlaganang: popegotaese, poriseme ya khutlonnetsepa, selennere.</p>	Tsebe 54–55

Tiro ya tsereganyo:

Teko e e sa netefadiwang

Tlaleletsa ka didirisiwa tse barutwana ba tla di bayang ka diithopha le go di tlhalosa

Tirwana ya Tirogae:

Barutwana ba tle ka sedirisiwa sa 3D go tswa gae, mme ba se tlhalose .

Bokhutlo

Boeletsa diponagalo tsa dilo tsa 3D le ka fa di dirisiwang ka teng mo botshelong mme o netefatsa gore barutwana ba tlhaloganya dipharologano magareng ga mefuta ya tsona.

Botsa dipotso tse di latelang

Popego ya 2D ke eng?

Popego ya 3D ke eng?

Pharologanyo fa gare ga popego ya 2D le popego ya 3D ke eng?

Naya dikao tsa dipopego tsa 3D mo phaposiborutelong

Di emela popego efe (popegotaese, selenere, kgolokwe)?



Go lekanya sentle

Go lekanya boleele ka tiriso ya diyunitsi tse di sa tlwaelesegang

Maikaelelo a thuto:

- Fopholetsa, lekanya, bapisa le go rekota boleele o dirisa dikgato tse di sa tlwaelegang: diatla, dikgato, dithupana tsa metara, dirula).
- Tlhalosa boleele jwa dilo mme o neele boleele ka diyuniti tse di sa tlhomamang.

Go itsise tekanyo e e tlwaelesegileng:

- Fopholetsa, lekanya, bapisa, rulaganya, le go rekota boleele o dirisa dithupana tsa metara, bolelele jwa metara jwa dikgole.
- Fopholetsa le go lekanya boleele ka disentimetara o dirisa rulara.

Matseno	
<p>Bontsha go lekanya ka diyuniti tse di sa tlwaelesegang jaaka bophara jwa seatla ka sa rulara.</p> <p>Dira gore Morutwana a lekanye didirisiwa tsa phaposiborutelo a dirisa diatla tsa ga...</p> <p>Tsenya diyuniti tse di tlwaelegileng tsa go lekanya jaaka dirula le dithupana tsa metara.</p> <p>Dira gore barutwana ba ikatise go lekanya didirisiwa tse di farologaneng tsa phaposiborutelo ba dirisa didirisiwa tse.</p> <p>Bona dilwana di le mmalwa go dikologa phaposi gore barutwana ba...</p>	
Didirisiwa	Mafoko a mašwa
<p>Dirula, magala wa tekanyo, manathwana a dipampiri</p>	<p>Diyuniti tse di sa tlwaelesang: Diyuniti tsa tekanyetso tse di sa amogelweng semmuso (sekao, bophara jwa diatla, dikgato).</p> <p>Diyuniti tse di tlwaelesegileng: Diyuniti tsa semmuso tsa go lekanya (sekao, dimitara, disentimetara).</p> <p>Bophara – sekgala se se nnutshane sa selo.</p> <p>Boleele - boleele jwa selo se tshenno ya sone e e atolositsweng thata; ke gore, selekanyo sa letlhakore la yone le telele thata</p>
Kaelo	
<p>Ruta barutwana go fopholetsa le go lekanya o dirisa diyunitsi tse di sa tlwaelesegang.</p> <p>Bapisa ditekanyo mme lo buisane ka go nepagala ga ditekanyo.</p> <p>Ruta Morutwana go dirisa diatla le dithupana tsa metara go lekanya boleele.</p> <p>Bapisa ditekanyo o dirisa diyunitsi tse di tlwaelegileng mme lo buisane ka go nepagala ga ditekanyo.</p> <p>Go itebaganya le Dikgato tse di sa tlwaelesegang:</p> <p>Go sa Tshepegeng go dirisa diyunitsi tse di sa tlwaelesegang:</p> <p>barutwana ba asokolelwa ke go tlhoka tlhomamo ga diyunitsi tse di sa tlwaelesegang.</p> <p>Go Fopholetsa ka Morutwana:</p> <p>Barutwana ba buisane go le thata go fopholetsa ditekanyo ka nepo.</p> <p>Go tlhaloganya diyuniti:</p> <p>Barutwana ba ka nna ba tlhakatlhakanya diyunitsi tse di farologaneng kgotsa ba lekanya ka tsela e e sa siamang.</p> <p>Tekanyo e e Tsepameng:</p> <p>Barutwana ba ka nna le matsapa a go tsaya ditekanyo tse di tsepameng</p> <p>Ditsibogo tsa go Ruta:</p> <p>Dirisa dipontsho tse di tlhapileng le go ikatisa ka go dira ka diyuniti tse di sa tlwaelesegang, morago ga moo gatelela dikgopolo tsa tekanyetso ka go bapisa le diyuniti tse di tlwaelegileng.</p>	

Dikarabo tsa ditirwana tsa buka**Tirwana 1**

Tsebe 56

1. Thusa barutwana go lekanya ba dirisa bophara jwa diatla tsa bone, ke gore, go tswa kwa ntlheng ya menwana ya bone ya kgonope go ya kwa ntlheng ya monwana wa bone
2. Thusa barutwana go lekanya bophara jwa diatla tsa bona ka cm

Tirwana 2

Tsebe 57

1. a. Karabo ya Morutwana ka boene ($a = 5 \text{ cm}$, $b = 4 \text{ cm}$, $c = 3 \text{ cm}$)
 $a = 5 \text{ cm}$, $b = 4 \text{ cm}$, $c = 3 \text{ cm}$
- b. Karabo ya Morutwana ka boene. Karabo e tshwanetse go bontsha go tlhologanya ka mela e Morutwana a bontshang pharologano magareng ga dikarabo tsa gagwe tsa potso 1 'a' le 'b'.
- c. Karabo ya Morutwana ka boene ($a = c = 4 \text{ cm}$; $b = d = 5 \text{ cm}$)
 $a = c = 4 \text{ cm}$; $b = d = 5 \text{ cm}$
2. a. Karabo ya Morutwana ka boene. Karabo e tshwanetse go bontsha go tlhologanya ka mela e Morutwana a bontshang pharologano magareng ga dikarabo tsa gagwe tsa potso 1 'a' le 'b'.
- b. Karabo ya Morutwana ka boene ($a \& c = 5 \text{ cm}$; $b \& d = 9 \text{ cm}$)
 $a = c = 5 \text{ cm}$; $b = d = 9 \text{ cm}$
Popego 3 e bulegile
Popego 3 ke yone e telele go gaisa

Tirwana 3

Tsebe 58

1. Kabelo
2. Noah
3. Noah, Prenita, Kabelo
4. $180 \text{ cm} - 165 \text{ cm} = \text{Pharologanyo ya } 15 \text{ cm}$
5. 180 cm ; 165 cm ; 142 cm

Ditsibogo tsa go ruta

Katisa barutwana go lekanya ka dirula le dithu tsa metara.

Gatelela botlhokwa jwa go nepagala le go mamama mo ditekanyong.

Gwetlha barutwana ka ditiro tsa leka tse di tlhokang nepo e e kwa godimo.

Bokhutlo

Boeletsa ka moo diyunitisi tse di tlwaelesegang di dirisiwang ka teng go lekanya mme o bapise ditekanyo tse le diyunitisi tse di tlwaelesegang.

Botsa barutwana potso jwa gore ke yuniti efe ya tekanyetso e e mo rulareng ya gago?

Bophara jwa lehaosiborutelo ya rona ke bokae?

Tafole ya tse e boloke jo bo kana kang?

Sekasatso ya diyunitisi tse di tlwaelegileng tsa go lekanya le gore ditekanyo tseno di ka bapisiwa jang le diphopho tse diyunitisi tse di sa tlwaelesegang.

Bathothomisi ba tshedimosetso

Maikaelelo a thuto:

- Kgobokanya Tshedimosetso ka ga sethlopha sa gago kgotsa sekolo sa gago.
- Emisetsa Tshedimosetso mo dithalong le mo dikerafong tsa dibara.
- Sekaseka Tshedimosetso go tswa mo dikemedi tse di neetsweng.

Matseno					
Simolola ka puisano ka ga bothokwa jwa go kokoanya Tshedimosetso mo botshelong jwa malatsi otlhaga morago ga moo dira gore barutwana ba sekaseke le go emela Tshedimosetso e e kokoantsweng ba dirisa mabotlolo a dipalo le kerafo ya dibara, go netefatsa gore ba tlwaelana le tsona ka bobedi pele ga tiro. Letla barutwana go ikatisa.					
Didirisiwa			Mafoko a mašwa		
Diboto tse di tshweu tse dinnye Pampiri			<p>Sethalo sa Thali: Sethalo se se dirisiwang go kokoanya Tshedimosetso ka bonako le ka nonofo ka tsela ya mabotlolo go bala.</p> <p>Kerafo ya bara: Kerafo e e dirilweng ka mabotlolo a tse di nang le bogodimo jo bo farologaneng go bala Tshedimosetso.</p>		
Kaelo					
Morutabana o simolola ka go bontsha barutwana ka fa ba ka tshwara sethlo sa thali le kerafo ya dibara ka teng, ba dirisa didirisiwa tsa mo phaposiborutelong, morago ga moo ba kgaoganye ka dithlopha tse di nang le didirisiwa tse nne gore go tsengwe Tshedimosetso ya tsona.					
<p>Go itebaganya le Diketsaetsego: Tsietsego ya kemedi ya Tshedimosetso: Barutwana ba ka nna ba tlhakanya tiriso ya dithali le kerafo tsa dibara kgotsa ba ka sokola go dira go tswa mo go e nngwe go ya kwa go e nngwe.</p> <p>Go sa bale dithali sentle: Barutwana ba ka nna ba bala ka phosageng ya mabotlolo fa dipalo di ya kwa godimo.</p> <p>Go sa baleng kerafo ya dibara sentle: Barutwana ba ka nna ba se tlhaloganya go bala bogodimo jwa dibara le go di amanya le Tshedimosetso.</p> <p>Ditsibogo tsa go Ruta: Dirisa didirisiwa tsa thuto le bontsho tse di tlhapileng go ruta dithali le dikerafo tsa dibara le go neelana ka ditshwaelo ka bonako ka mabotlolo go ikatisa. Akaretsa dikao tsa nnete go dira gore tirwana e nne e e ngokang le e e maleba mo barutwang.</p>					
Ditirwana tsa dithalo tsa buka					
Tirwana:					Tsebe 60
1. Kopola le go faneletsa sethlo sa ga Ben.					
Mabotlolo	Bohibidu	Botala ba loapi	Botala ba tlhaga	bontsho	pink
Palo ya dithibo tsa mabotlolo	2	5	7	8	3
Thali	II	III	III II	III III	III