

MPHATO

2

PUKU YA
MOITHUTI

Platinum

Dikhoundu le Diroboto

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

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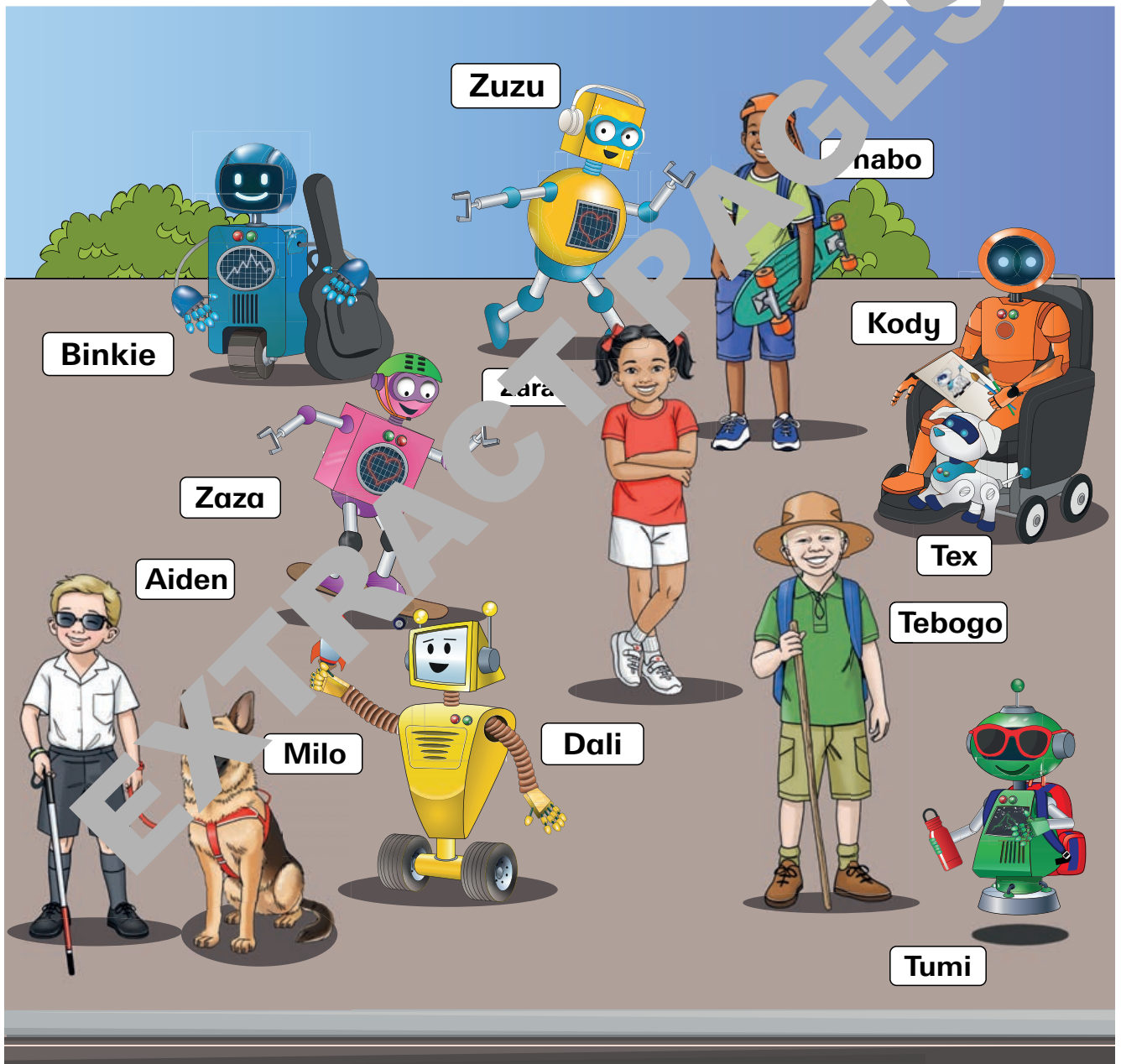
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Le amogetšwe

Moithuti yo a Rategago,

O amogetšwe mo go puku ye ya go thabiša ya kgakollo! O tla kopana le dikokwane tša baanegwa ba go makatša; go no swana le moanegwa wo mongwe le wo mongwe, o ikgethile ka tsela ya gagwe, le wena o ikgethile!



Itokišetše go ithuta, go raloka le go hlama o na le bagwera ba gago. Ithute ka go ipshina.

Tsela ya go diriša puku ye

Ge o bona	Go ra gore:
	nako ya go šoma le mogwera
	nako ya go šoma ka sehlopha
	nako ya go šomiša diatla le bjoko bja
	nako ya go thala le go ngwena
	nako ya go lela a ga dilo
	nako ya go šomiša mabjoko a ka le go
	nako ya go dira khoutu
	nako ya go sepetša mmele wa ka
	nako ya go abelana

Go kwešiša kgopolo ya tlhahlo

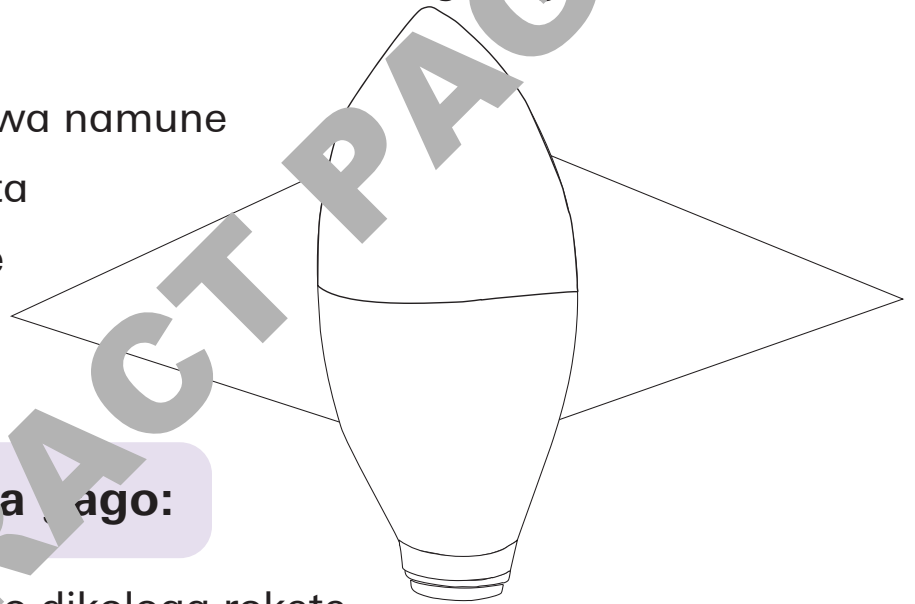
Dira rokete:

O tla nyaka:

- Dithatana tše 4 (e ka ba dithatana tša go hupa tsa ai pentilwego, mathontswana, khatepoto goba go nni ya mmala yeo e segilwego ka diripa. Šomiša eng kapa eng yeo e lego bonolo go wena ebile e hwetšaga a go bonolo.
- Ye I ye hubedu
- Ye I ya mmala wa namune
- Ye I ya talalerata
- Ye I ye serolane
- Tleluu

Go dira rokete ya gago:

- Thala methalo go dikologa rokete
- Ripa mo o madilego methalo gona go dikologa rokete
- Lokela rokete ya gago mebala
- Godimo – hubedu
- Ka tlase – talalerata
- Ka go la go ja – mmala wa namune
- Ka go la ngele - serolane
- Kgomaretša rokete ya gago godimo ga seripa sa khatepoto



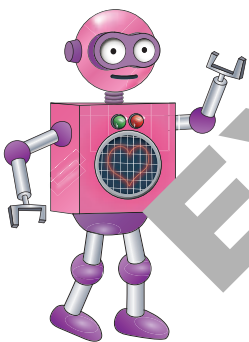
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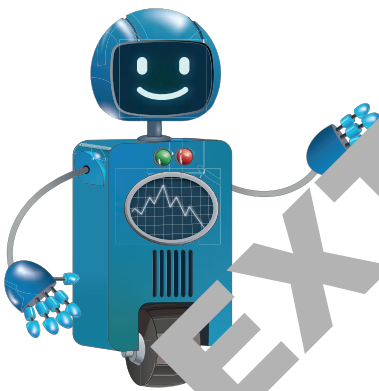
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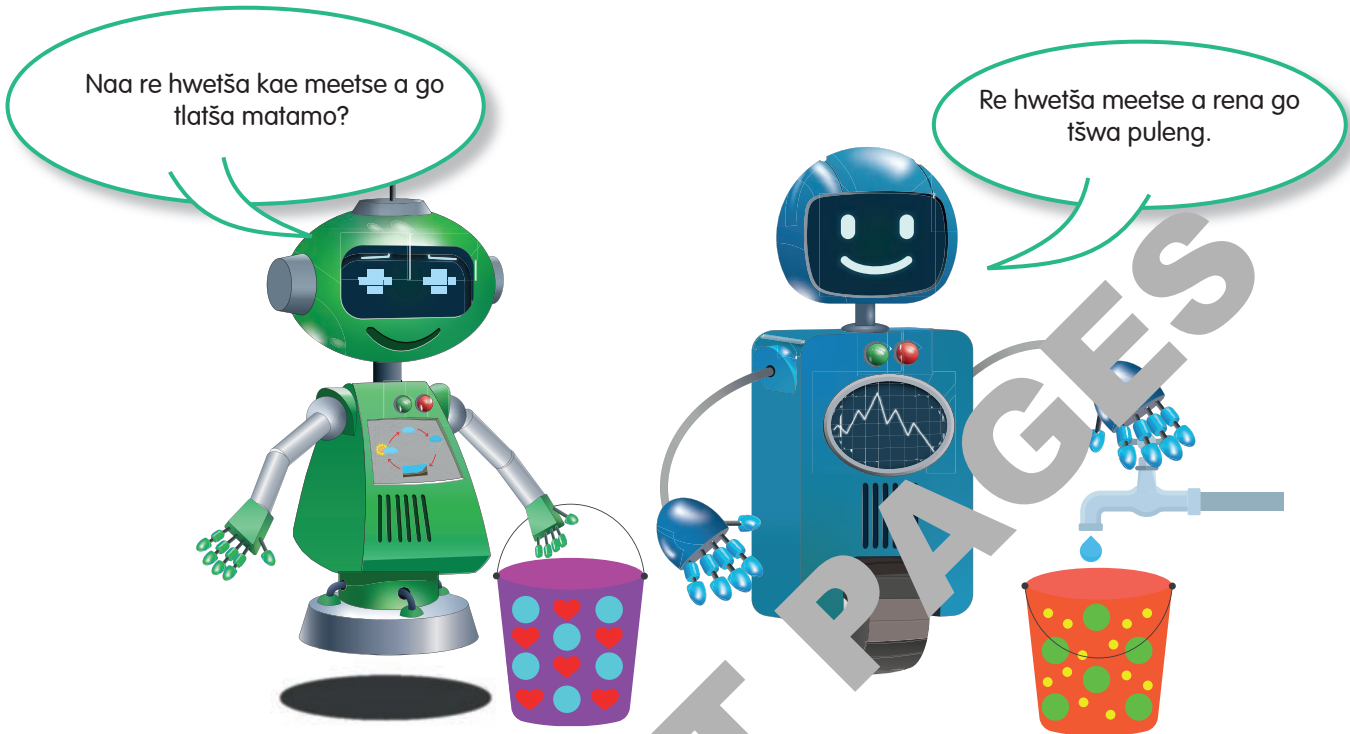
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EXTRACT PAGES



Ga se ra swanela go senya meetse. Re swanetše go boloka meetse fao re kgonago.

A re swanetše

Go nana ka tsela ya dikhomphuthara go swana le go rarolla papadi ya diphuzumoya. O arola bothata ka karolo tše dinyenyane. O lebelela dipaterone go bona ka go di kopanago ka gona, gomme o dira leano la go bea tšohle ka tatelano le go rarolla papadi.

Setlwaedi sa tšatši ka tšatši sa go itokišetša sekolo.



1. Bea diswantšho ka tatelano ya malebu.
2. Lebelela seswantšho sa **b**. Bolela ka magato a go hlapa meno a gago.
3. Lebelela tatelano ya diswantšho.



- a. Bolela ka se o se nyakago go dira dijo tša meseng. Hlokomologa tšeo o sa di šomišego.



Mošongwana wa 1



Lebelela diswantšho. Ahlaahla dipotšišo le mogwera wa gago.

1. Ke dinomoro dife tša diswantšho tša go tšha leboyo la meetse?
2. Ke diswantšho dife tše pedi tšeo o sa swanelwego ke go ba gona?
3. Ke efe tatelano ya malaba a diswantšho? Hlaloša lebaka la gago.

Go boloka meetse



Re swanelwe go walela the...

Go rothela fase



Marothi a pula a hlogela marung. Namile pula ya na.

Go kgelela meetse



Meetse a kgelelwa ka mawatleng, maopeng le dinokeng

Phokafalo



Meetse-muši a hlola maru.

Go kgoboketša meetse a pula



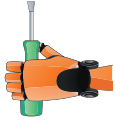
Re beeletša meetse a pula go nošetša dimela.

Moyafalo

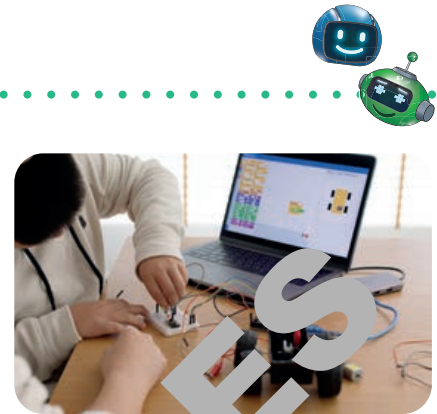


Letšatši le fiša meetse gomme a moyafala.

Mošongwana wa 2



Diroboto di rulagantšwe go latela ditaelo.



O tla hloka:

- lehlokwana goba phentshele ye bogale
- dinkgokolo tše pedi tše kgolo go letlakaleng la A4
- phini ye tee yeo e arogantšwego gabedi
- Sekero
- Dikherayone tša makhuta wa phentshele

Kgato ya 1: Mena dinkgokolo tše o tše pisa ka dikarolo tše nne go tšwana le pisa.



Kgato ya 2: Tšala nkgokolo ye tee o tše o ripe selai se tee sa pisa.



Kgato ya 3: Thala dikgato ka fao meetse a sepelago ka gona go dikologa nkgokolo ka dikarolo tša yona ka moka. Netefatša gore e rulagantšwe gabotse: moyafalo, phokafalo, Go rothela fase le go kgelela meetse.



Mošongwana wa 2 (Go tšwela pele)

Kgato ya 4: Phula lešoba gare ga didiko ka bobedi.



Kgato ya 5: Bea dinkgokolo ka go di hlatlaganya, o be o tšimise phini yeo e arogantšwego gabedi go di kgomaganya. Dikološa o be ithule ka tatelano ya meetse.



Leka leotwana ga gago la leboyo la meetse.

Sepetša se dikološa ka godimo go bona seswantšho se sengwe le se sengwe sa leboyo la meetse.

1. Naa leboyo le dikologa gabonolo?
2. Naa diswantšho di khalarilwe?
3. Naa diswantšho di beilwe ka tatelano ya maleba?
4. Naa o ka hlabolla kae?

Mošongwana wa 3







Hlama sete ya ditaelo go fihliša Binkie go pompi.



Šomiša dikhoutu tše tša dikarata:



O ikwa bjang ka Mošongwana wo o o dirilego?

1 	2 	3 	4 
Ke a leka!	Ke thabile!	Ke a ikgantšha!	Ke a tšhabele kudu!

EXTRACT PAGES



A re thome

Ge re rarolla palorara, re nyanana le tshedimošo ye bohlokwa ra hlokomologa tshedimošo ye nngwe.

1. Hwetša dijo tše pedi tšeo o swanetšego go di hlokomologa go e pakanya tafola ya moletlo wa matswalo.



Go hlahlamolla

Go hlahlamolla ke go ripaganya dilo ka dikarolwana tše nnyane.

Lebelela tonate.

Tonate e ripagantšwe ka mokgwa mang?

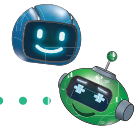


Go lemoga paterone


Go lemoga paterone ke go bona paterone e ya dilo yeo e ipušetšago ka tatelano ya go swana.



Ke tatelano efe pateroneng ye?



Mošongwana wa 1

1. Thuša Zara  go hwetša kokisana yeo a e ratago.



- a. Naa a ka ja kokisana efe?
b. Go reng o kgethile kokisana yeo?
2. Kgetha kokisana ya gago ya mmamoratwa.
a. E hlahlamolle.
b. Ke dikarolo dife tša go fapafapana tšeo di bopago kokisana ya gago?

Mošongwana wa 2



Bolela le mogwera wa gago.

1. Ke kokisana efe ya mmamoratwa go Mošongwana wa 1?
2. Thala le go fa dikarolo tša kokisana wa mogwera wa gago.
3. Lekola sethalwa sa mogwera wa gago. Naa o thadile kokisana ya gago ka tsela ya maleba? E bapetše le kokisana wa ku gare ga puku ya moithuti.

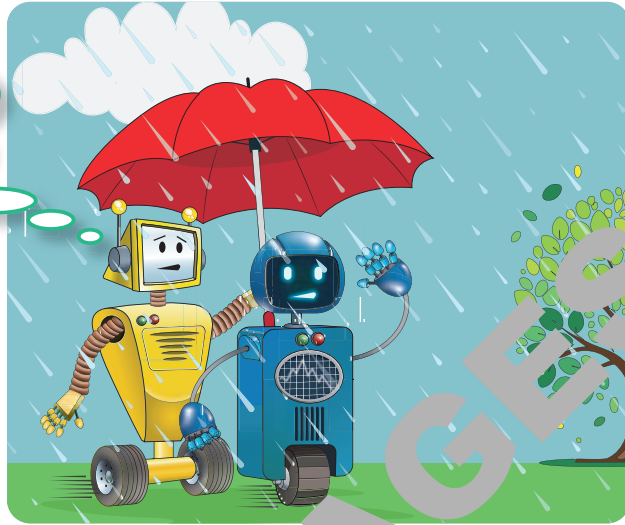
O ikwa bjang ka Mošongwana wo o o dirilego?

1 		3 	4 
Ke a leka!	Ke thabile!	Ke a ikgantšha!	Ke thabile kudu!

Mengwako e dira gore re dule re bolokegile re omile

C6,
C3

Boso bo befa
bo eya pele, re
swanetše go fihla
gae!



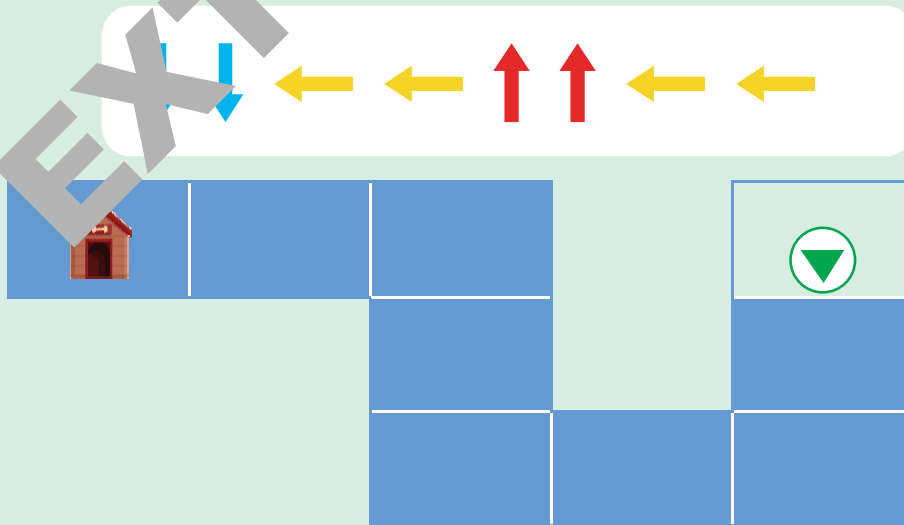
Diroboto di ihlaganela go fihla gae. Naa di dula ka mengwakong efe?

A re thome

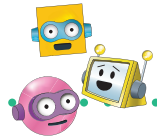
Alkoritheme ke sete ya ditshelo.

Naa khoutu e tshela ka tse go tloga puleng?

Latela khoutu go ema mo go  :



Mošongwana wa 1



I. Naa roboto ye nngwe le ye nngwe e dula kae?



Godin		La nngwele	
Fa		La go ja	

Mošongwana wa 1 (Go tšwela pele)



2. Rekota dikarabo tša gago.
3. Bolela ka khoutu.

Lebelela dipaterone. Ke mothaladi ofe o o sego paterone? Boledišana le mogwera wa gago.

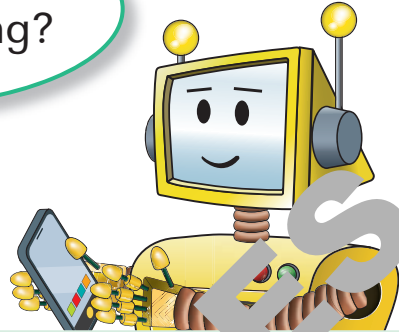
- a.
- b.
- c.
- d.
- e.

O ikwa bjana ka Mošongwana wo o o dirilego?

1	2	3	4
Ke a ...!	Ke thabile!	Ke a ikgantšha!	Ke thabile kudu!



Naa theknolotši
e re thuša bjang?



A re thome

Naa theknolotši ke eng?

Theknolotši e dirwa go fihlelela ditšhaka tša batho le go rarolla mathata a batho.

Lebelela ditšweletšwa. Naa di hola batho bjang?



Setofo



Setšhidifatši



Sešupanako

Theknolotši – go šomiša didirišwa le metšhene go rarolla mathata go batho le go dira gore dilo di be bonolo.

Lentsu
le lefisa

Theknolotši ya Tshedimošo ke eng? Theknolotši ya tshedimošo (IT) e šomiša dikhomphutharara le inthanete. Re diriša didirišwa tše go abelana tshedimošo, go bapala dipapadi, go bogela dibidišwa go boledišana le bagwera le ba lapa.



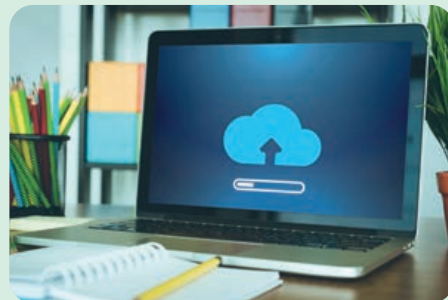
Motho yo a boelago le khomphuthara ka mme le le kgethegilego, a e botša seo e swanetšego go se dira. Seo se bitšwa go ngwala dikhošo.



Re ka diriša thabolete go letša mogala

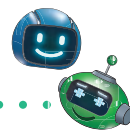


Re ka šomiša khomphuthara go hwetša karabo ya potšišo inthaneteng.



Re ka šomiša khomphuthara go romela goba go amogela tshedimošo, go swana le molaetša goba seswantšho.

Mošongwana wa 1



Nyalantšha theknolotši ye nngwe le ye nngwe le tšhomišo ya yona.



Aene



Lebato la marole



Fomo



Kgokaganyo



Roboto ya go hlwekiša ka bahkumu



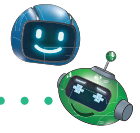
diaparo tša go šošobana



Sellathekeng



setšweletšwa sa kota



Mošongwana wa 2

Ngwala khoutu go thuša Binkie go humana ditšweletšwa tša theknolotši tšeo di laeditšwego diswantšhong tša **a.** go fihla go **c.**

b.			
		a.	
	c.		



Go		La ngele	
		Nepagetše	

- Binkie o nyaka go romela imeile go mema bagwera ba gagwe pešong ya nama.



Mošongwana wa 2 (Go tšwela pele)

2. Binkie o lekola apo ya boso go bonela pele boso.



3. Binkie o bulela sepikara sa gagwe sa go lla sa gagwe sa go lla godimo go theeletša mmino.

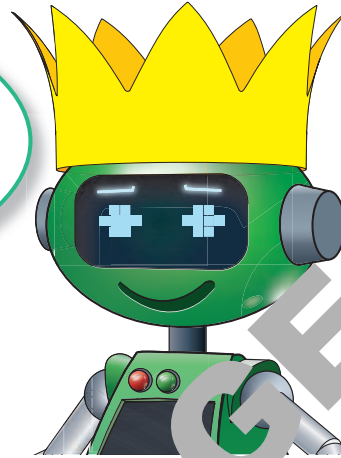


- a. Ngwala khoutu.
 b. Efa mošwera wa gagwe go tšwela pele ya gagwe le yena a go fe ya gagwe.
 c. Lekola khoutu ya gagwe.
 d. Bolelang ka go phošolla gomme le lokiše diphošo tšeo di ka bago di le gona.

O ikwalelang ka Mošongwana wo o o dirilego?

1		2		3		4	
Ke a leka!		Ke thabile!		Ke a ikgantšha!		Ke thabile kudu!	

"Ka moka le bohlokwa kudu go nna," morutiši o re bjalo. "Ke ile go le ruta go dira mphapahlogo, ka lebaka la gore go bohlokwa go i kwa o le bohlokwa tšatši le lengwe le le lengwe."



A re thome

Diroboto di latela ditaelo. Bano ba go tseba polelo ya khomphutha ba bitšwa ba ne dikhoutu.

Batheadikhoutu ba ngala ditaelo gomme ba di lokela ka robotong. Pele go tseba robo e thoma go šoma, batheadikhoutu ba tšefatša gore ba dira Mošongwana wa bona ka tšwano.



Letsogo la roboto

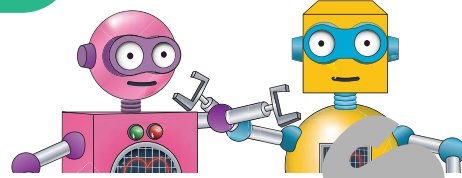


Go lekola letsogo la roboto

Mošongwana wa 1



Direla mogwer'ago mphapahlogo



Go hwetša seo se tla dirago gore mogwera wa gago a ikwe bokaone.

- Naa go reng mogwera wa gago a nyamile?
- Naa o ka thabiša bjang mogwera wa gago?
- Naa mphapahlogo wa 'K' o nlokwa' o ka mo thabiša?

Bolela (hlaloša) gore mphapahlogo wa gago wa go ikgetha o tla lebelega bjang.

Thala go laetšega gore mphapahlogo wa gago wa go ikgetha o be boka ba wo mobjang.

Lebelela ditelo mabapi le go dira wo mongwe wa mekuta ya mephapahlogo ya pampiri. Go na le mekuta yenyetšo ye mengwe ye mentši.



Mošongwana wa 1 (Go tšwela pele)



Ditaelo:

Kgato ya 1: Khalara mahlakore ka moka a poleiti ya pampiri o diriša pente goba kherayone..



Kgato ya 2: Mena poleiti ya pampiri ka diripagare tše pedi



Kgato ya 3: Thala methalading meraro ya marontšo go dira sebopeho sa V.



Kgato ya 4: Ripa methalading ka moka e 3. O se ke wa ripa e tihla mafelelong a poleiti.



Kgato ya 5: Rarulla poleiti gomme o ripe mothalading wa momeno wa gare.



Kgato ya 6: Mena go bula merumo ka moka.



Dira mphapahlogo wa gago wa go ikgetha. Šoma ka bothakga le ka šedi ye kgolo.

Mošongwana wa 2

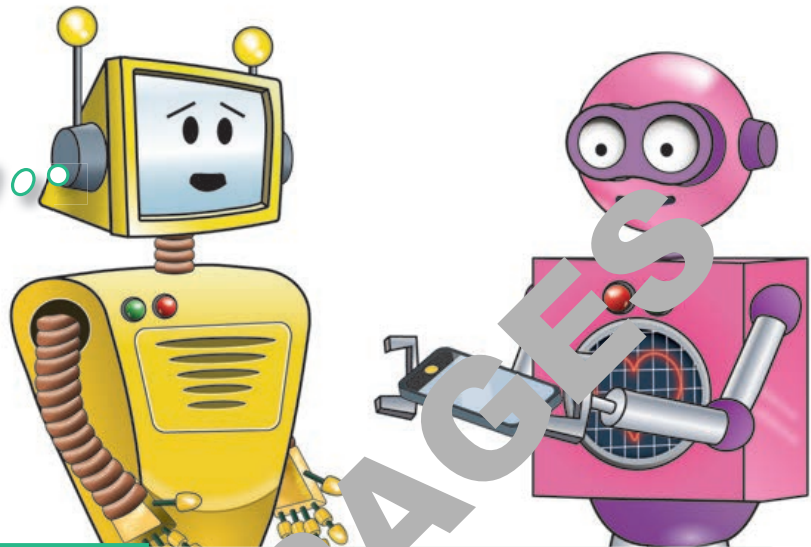


1. Naa mphapahlogo o lekana hlogong ya mogwera wa gago?
2. Naa o lekana botse ga kaakang?
3. Naa o ka hlabolla eng?
4. Bolela ka gore mogwera wa gago o ikwa bjang.
 - a. O ikwa bjang mabapi le go hwetša mphapahlogo?
 - b. O ikwa bjang mabapi le go fa motho yo mongwe mphapahlogo wa gago bjalo ka mpho?

O ikwa bjang ka Mošongwana wo o o dirilego?

1		2		3		4	
Ke a rek...	Ke thabile!	Ke a ikgantšha!	Ke thabile kudu!				

Re ka thuša bjang
Dali go bolela ka
boitshepo ge a
šomiša sellathekeng
sa gagwe?



A re thome

Ge re kgokagana le batho inthaneteng, re swanetše go ba swara ka tsela ya nnete, bego re tla ba swara ka gona ge re kopana le batho ka sebele. A re ahlaahle bjo bongwe le bjo bongwe le bja maitshwaro a.



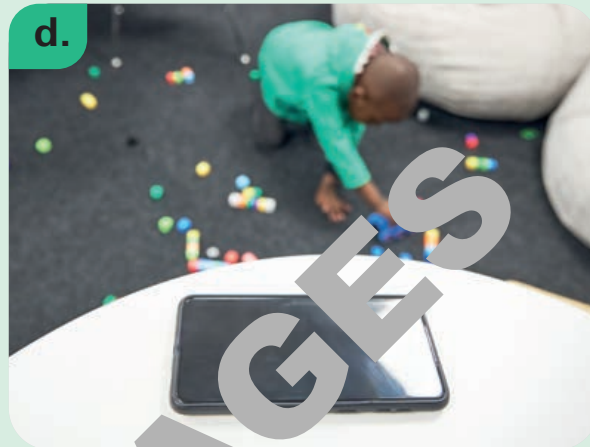
Laetša tlhompho le botho,
le ge o sa dumelelane le
bona.



O se ke wa ba tsena ganong.
Leta sebaka sa gago sa go
bolela.



Kgopela tumelelo.



Ena e ka nakwana go
komašiša mahlo a gago.



Hlophela sellathekeng
sa gago.

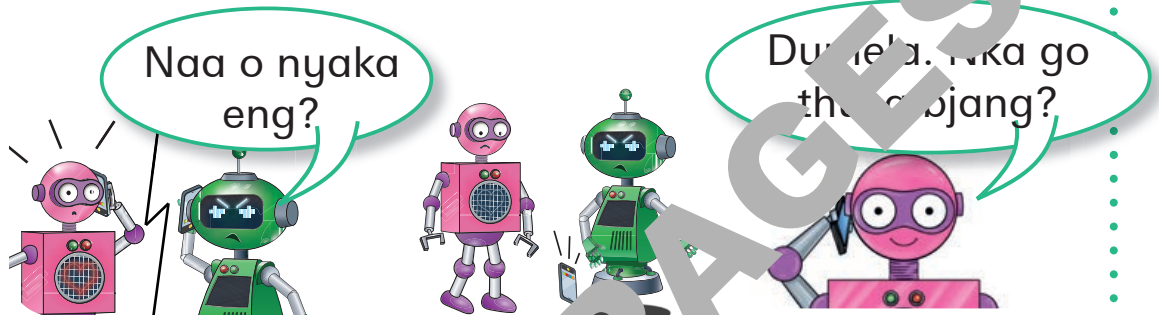


Nagana pele o abelana
goba o fetiša molaetša wo
o rilego.



Mošongwana wa 1

Ahlaahla maikutlo a mangwe le a mangwe ao a ntšhitšwego ka sellathekeng le mogwera wa gagwe.



Naa se se laetša
tlhompho?



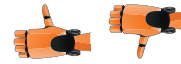
O swanetše go
araba bjano.

Naa se se laetša
tlhompho?

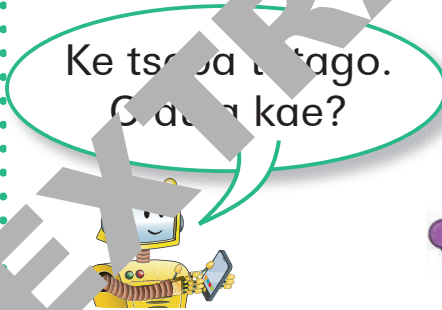


O swanetše go
dira eng?

Naa se se laetša
tlhompho?



O be o ka fetola
potšišo?



Naa se se laetša
tlhompho?



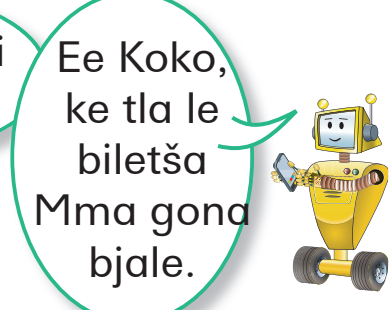
O swanetše go
dira eng?



Naa se se laetša
tlhompho?



O be o ka fetola
polelo ye?



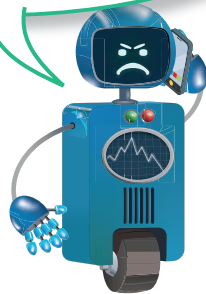
Naa se se laetša
tlhompho?



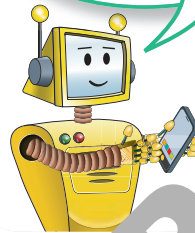
O be o ka fetola
polelo ye?

Mošongwana wa 1 (Go tšwela pele)

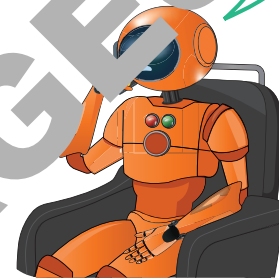
Ke go boditše gore nka se abelane le wena phasewete ya ka!



Ke a leboga ge o leditše. Ke tla fetiša molaetša.



Ke go boditše gore o tlogele go nniša.



Naa se se laetša tlhompho?



O swanetše go dira eng?

Naa se se laetša tlhompho?



O be o ka fetola polelo ye?

Naa se se laetša tlhompho?



O be o ka fetola polelo ye?

Moletšo

Bokega – Ka mehla kgopela motho yo mogolo tumelelo pele o ka šomiša sedirišwa, sellathekeng goba thabolete ya gago. Ba bontšhe gore o dirang le gore o boledišana le bomang.

Eba le botho – Laetša ba bangwe botho ka dinako ka moka Inthaneteng, go no swana le ge o kopana le bona ka sebele.

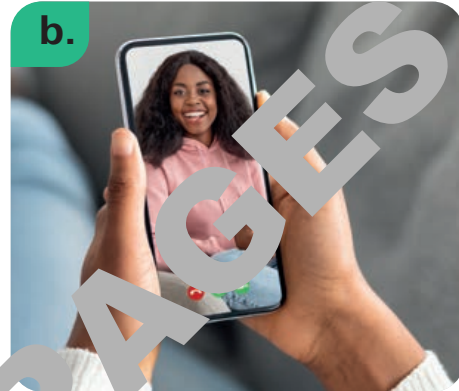


Mošongwana wa 2

Lebelela seswantšho se sengwe le se sengwe.



Itšea senepe



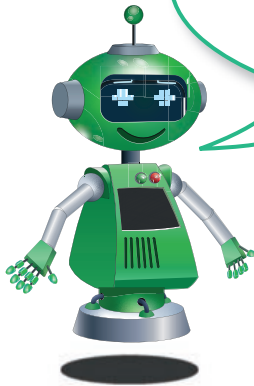
Qeletša mogala ka bidio

1. E ka ba batho ba ka apeng la geno ba diriša dillathekeng ša bona ka tsela ye?
2. Go lokile go dira se lefelong la bohle?
3. Ge go go bjalo, o swanetše go hlokomela eng?

O ikwa bjalo Mošongwana wo o o dirilego?

1 	2 	3 	4 
Ke a leka!	Ke thabile!	Ke a ikgantšha!	Ke thabile kudu!

Zara o rata kgwele ya maoto, re ka kgona go kopana le yena lebaleng la dipapadi?



A re thome

Gopola, sete ya ditaelo e thuša go rarolla bothata.

Thuša sebakadi sa kgwelentlatlana go hlophisa bobapalelo bja mabaka.

Naa tsela ya mabaka ke efe? Efa mabaka.



↓	→	→	
		↓	
		?	?



↓ → → ↓ ? ?

Godimo	↑	La ngele	←
Fase	↓	La go ja	→

1	↓ → → ↓ ← ←
2	↓ → → ↓ → →
3	↓ → → ↓ ↓ →



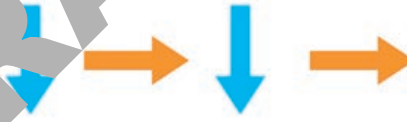
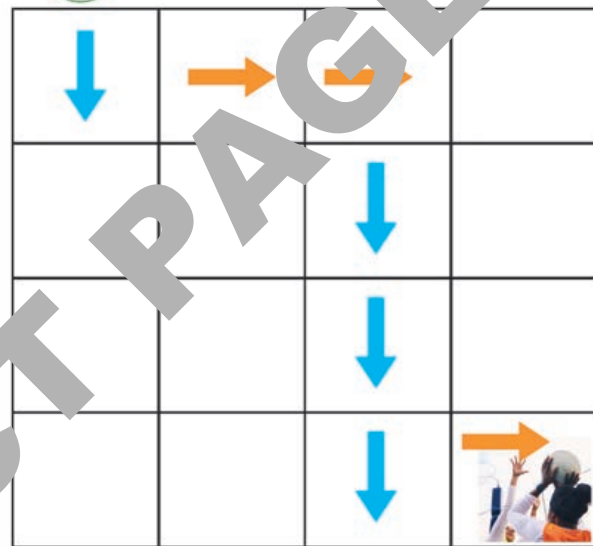
Mošongwana wa 1



A re bušetše thuto ya mabapi le go khutsufatša khoutu. Lebelela dikgato ka morago ga puku.

Naa o bona tša go ipušeletša?

Lekola khoutu yeo e khutsufaditšwego Naa ke ya maleba?



②

③


Lekola ditaelo ka mantšu.

Mohlala:

- Eya fase.
- Eya ka go la go ja
- Eya ka go la go ja

Mošongwana wa 1 (Go tšwela pele)

Etšiša tsela ya roboto go hwetša khoutu ya maleba.

↑	→	↑	→
↑	↓	↑	
↑	↓	→	



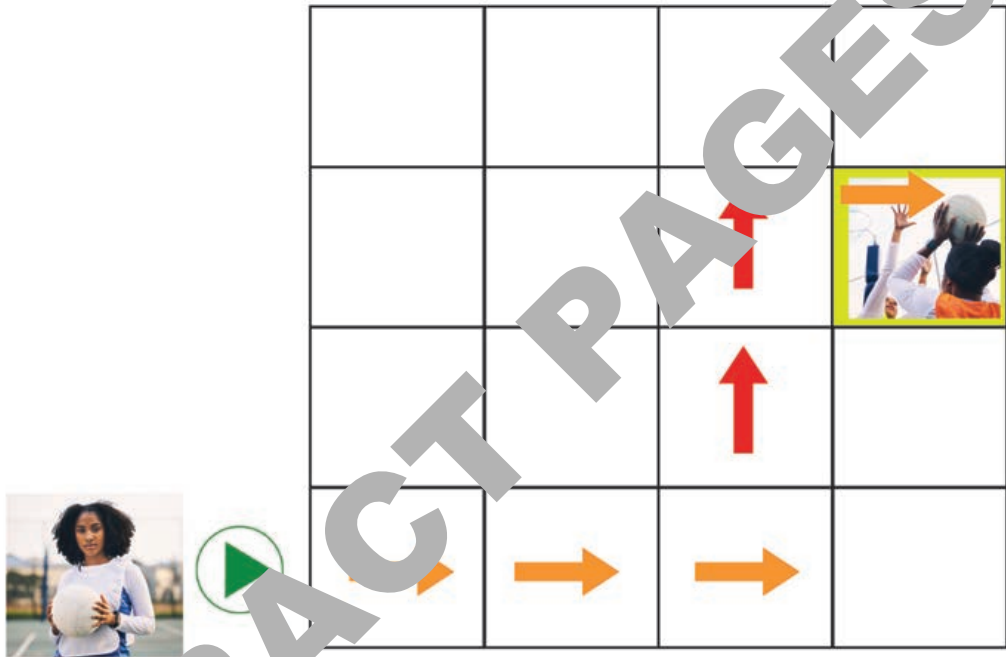
1. Kgetha khoutu ya maleba ya tsela ye.

①	↑↑↑→↓↓↓→↑↑→↓
②	↑↑↑→↓↓↓←↑↑→↓
③	↑↑↑→↑↑→↑↑→↓

2. Khutsufatša khoutu ya maleba.

Mošongwana wa 1 (Go tšwela pele)

3. Etšiša tsela ya roboto go hwetša khoutu ya maleba.



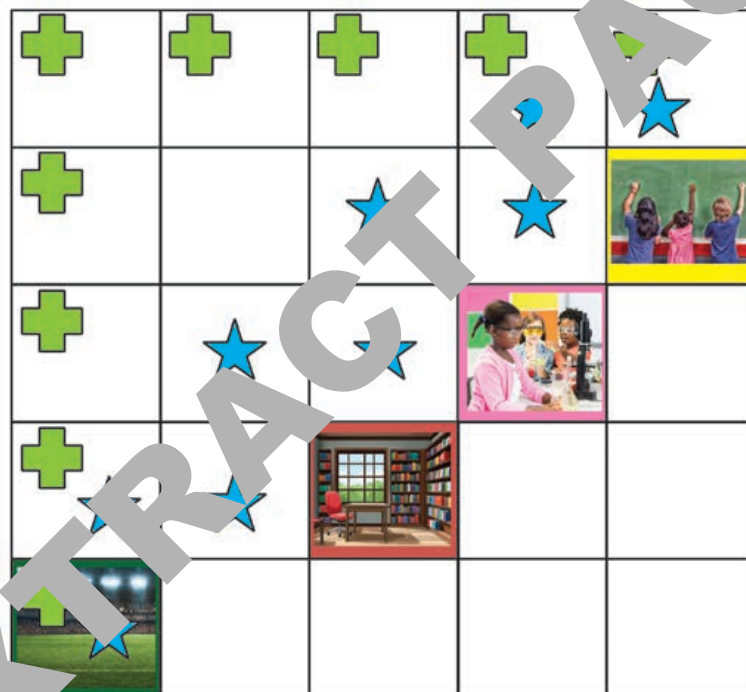
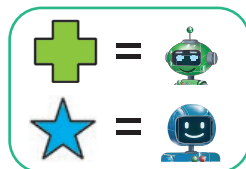
4. Nwaga tlase khoutu ya tsela ye. Khutsufatša khoutu.

5. Bolela ka phapano magareng ga tsela ye kopana le khoutu yeo e khutsufaditšwego.



Mošongwana wa 2



Binkie le Thabo ba kopana le Zara lebaleng la dipapadi.




Šomiša dikarata tše tša dikhoutu.

Godimo	↑	La ngele	←
Fase	↓	La go ja	→

Mošongwana wa 2 (Go tšwela pele)

1. Lebelela khoutu tše tharo tša ka tlase. Khoutu efe ke ya roboto efe?  

a. 

b. 

c. 

2. Lebelela dikhoutu.

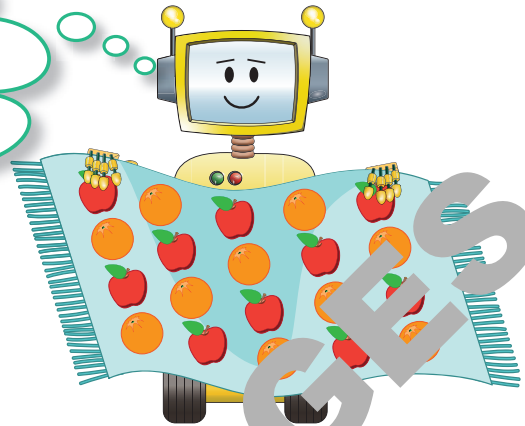
- Ke efe khoutu ye kaone?
- Khutsufatša khoutu ya tšela ye kaone yeo o e kgethago.
- Phošolla le go kisa tsela ya go se fihle lebaleng la dipadi.

O ikwa bjani ka mošongwana wo o o dirilego?

1 	2 	3 	4 
Ke a leka!	Ke thabile!	Ke a ikgantšha!	Ke thabile kudu!

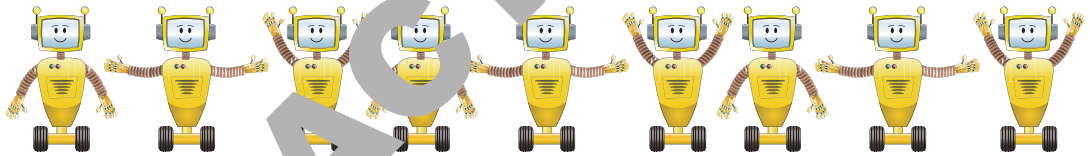
Hmm, lebelela dipaterone tše. Ke ipotšiša gore ke eng sa go latela.

Dali o hweditše dipaterone tša go kgahliša kudu.



A re thome

Paterone e a bušeletša. Lebelela paterone ya mosepelo.



1. Naa ke tšhe tše kae ka gare ga tatelano pele e thom e go bušeletša?
 2. O ka aya mesepelo ye? E bušeletše makga a 3 go ... go 4.
- ... ke **tatelano** yeo e bušeletšwago ya mesepelo.

Tatelano – mothaladi wa dilo tša go latela molao wo o rilego, bjalo ka mebala yeo e dulago e tšwelela e le hubedu, talalerata, talamorogo, hubedu, talalerata, talamorogo ...



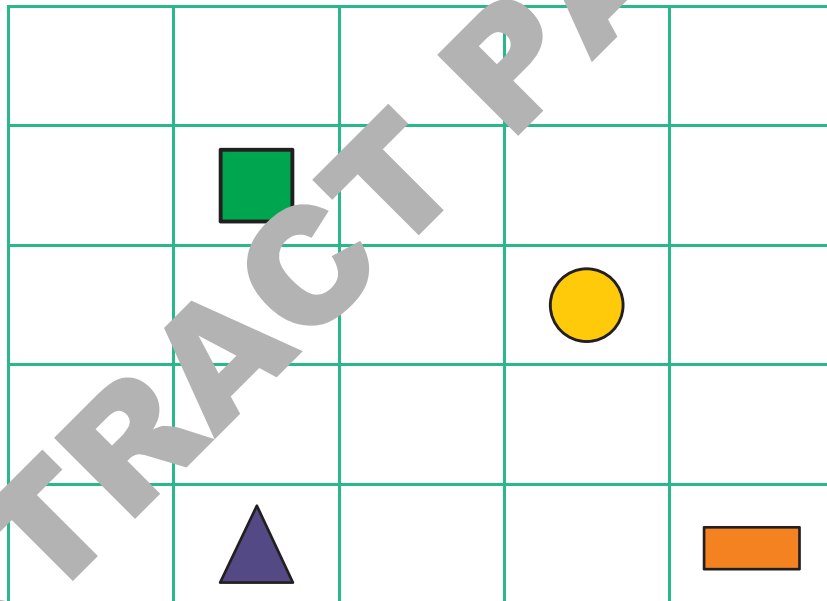
Lentšu
le lefsa



Mošongwana wa 1

Lebelela kiriti. Tše ke dibopego tše nne.

1. Hlama khoutu go kgoboketša tše nne tša dilo tše.
2. Lekola khoutu ya gago le mogwera wa gago.
3. Hlama tatelano ya gago o šomiša dilo tše tše nne.
4. Hlama paterone o šomiša tatelano ya gago.

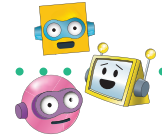


Godimo	↑	La nngele	←
Fase	↓	La go ja	→

5. Lekola tatelano le paterone ya mogwera wa gago.
6. Phošolla paterone ya gago ge go hlokega.



Mošongwana wa 2



Hlaloša paterone

1.

 1 2 3 4	 3 4
----------------------------	--------------

2.

 1 2 3	 3 4
---------------------	--------------

3.

 1 2 3 4	 3 4
----------------------------	--------------

O ikwa bjang ka Mošongwana wo o o dirilego?

1	2	3	4
Ke a leka!	Ke thabile!	Ke a ikgantšha!	Ke thabile kudu!



Kody o nyaka go tseba gore baitlanti ba ka phapošing ba beakanya bjang sebjana sa outse.

A re thomane

Ditaelo tšeo go kgobota di ngwalwa ka peakanyo ya go kwešišaga. Le ngwalwa ka tatelano.

Lebelele diswantšho letlakaleng leo le latelago. Tatelano ya diswantšho e anega kanegelo.

1. Naa kanegelo e mabapi le eng mo diswantšhong tše?
2. Lekola ge eba tatelano ke ya maleba?
3. Hlaloša karabo ya gago.



1.

Boramabelo mathomong a lebelo ba hlomile tlase ka lengwele le tee



2.

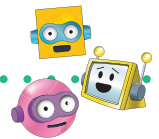
Boramabelo ba itokišetša go kitima



3.

Boramabelo ba hlomile go tlogela lebelo

Mošongwana wa 1



A re hlohlomiše ditatellano.

1. Naa tatellano ye ke ya maleba? E rarolle.



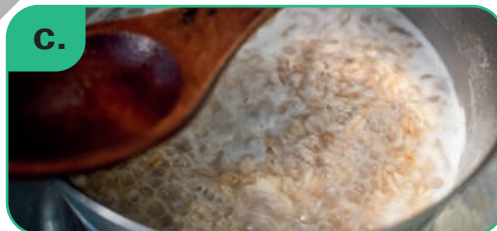
a.

Iphine ka sesola sa outse.



b.

Hlakanya outse le meetse ka pitšeng.



c.

Apea metsotso ye 5.



d.

Hudua outse ya gago gabotse.

Mošongwana wa 1 (Go tšwela pele)

2. Leka gape.



Tšhela maswi godimo ga sereale



Go nina ka sesola sa sereale

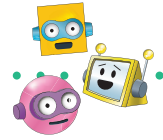


Tu tšha maswi



Tšhela sereale ka gare ga sebjana

Mošongwana wa 2



Hlama tatelano ya gago ya diswantšho.

1. Kgetha dijo.
2. Bolela ka dikgato tšeo o di latela go tlogela beakanya dijo.



Salata



Sangwetše



Hot dog



Hampeka

3. Thala dikgato tša dijo tša gago mo dikarateng.



Mošongwana wa 2 (Go tšwela pele)

Lekola:

4. Efa leloko la sehlopha dikarata tša gago le tša a go fe tša gagwe.
5. Bea dikarata tša gagwe tša diswa tšona tatelano ya maleba.
6. Bolela le maloko a sehlopha mabapi le tatelano ya dikarata.
 - a. Naa tatelano e bonolo go e kwešiša?
 - b. Naa dikgato tšona moka di bonolo go di latela?
 - c. Ke eng se se bego se ka hlabollwa mabapi dithalwa?
7. Latela tšona ya 4 go ya go 6 le leloko le lengwe la sehlopha.



O ikwa jang ka Mošongwana wo o o dirilego?

1		2		3		4	
Ke a leka!		Ke thabile!		Ke a ikgantšha!		Ke thabile kudu!	