



IBANGA

3

ISIKHOKHELO
SIKATITSHALA

Platinum

Imathematika

S Bota • G Agherdien • N Johnson • G Van der westhuizen

Platinum Imathematika Ibanga 3 Isikhokhelo sikatitshala

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

© Maskew Miller Learning (Pty) Ltd 2022

Onke amalungelo agciniwe. Akukho ngxenye yale ncwadi inokuthi iphinde yenziwe ngokutsha, iigcinwe koomatshini okanye isasazwe nangaluphi na uhlobo, okanye nangayiphi na indlela, eyombane, eyomatshini, eyokufota ikopi, eyokurekhoda, ngaphandle kwemvume ebhaliweyo efumaneka kwangaphambili yalowo unelungelo layo nongumniniyo.

Ukuba ufuna imvume yokwenza ngokutsha nayiphi na ingxenye yale ncwadi, xhumana neSebe lamaLungelo neMvume kule nombolo 021 532 6000 okanye ungathumela i-imeyile kwi: rightsgranting@mml.co.za. Ukumangalela ukophulwa kwe lungelo lokushicilela ungathumela i imeyile ku copyright@mml.co.za.

Ishicilelwe ngowama-2025

ISBN 978-1-779-83405-8
ePDF 978-1-83499-069-9

Umpapashi ngu Thandi Kgosana
Umhleli olawulayo ngu Khanga Slinda
Yahlelwa ngu Christine de Nobrega
Umphandle wencwadi uyilwe yi MML Visual Design
Umfanekiso wekhava ngu MML Visual Design
iNcwadi iyilwe yi MML Visual Design
Imifanekiso ngu MML
uMdibanisi wonobumba abaza kushicilelwa ngu STRAIVE kunye no Lizette Watkiss
Ishicilelwe ngu

Imibulelo

Ababhali kunye nabamshicileli babulela aba balandelayo ngokusetyenziswa kwemifanekiso:
p16, Buch and Bee/Shutterstock; p29, jehsomwang/Shutterstock

Isiqulatho

Wamkelekile	iv
Umyalezo wombhali naba shicileli	v
Singayisebenzisa njani lemixholo ibeyi mpumelelo	vi
Fundisa njengencutshe!	vii
Ukuqonda ngodibaniso ezifundweni	viii
Ukufundisa izibalo ngokuqonda	x
Isalathiso Sokufundisa Ngezixhobo	xii
Isakhiwo sencwadi zomfundi lesi-3 se Matematika	xiii
Ukucazulula iKharithulam (CAPS)	xv
Isalathisi Sokufundisa Ngezixhobo	xvii
Umxholo nengcamango zemephu	xviii
Iindlela zokufundisa iMathematika ngokuqonda nangempumelelo Kwibanga 1 – 3	xix
Isicwangiso sokufundisa	xxi
Ikota 1	2
Ikota 2	38
Ikota 3	63
Ikota 4	100
litheyibhile zezibalo zengqondo	137
limpendulo kwizibalo zengqondo	176
Imidlalo yokufunda esebenzisanayo	198

Izisombululo zemisebenzi novavanyo

Intshayelelo nomzekelo

- Intshayelelo yeNgcaciso: Isishwankathelo esifutshane seenjongo zengqikelelo, icacisa into elindeleke ukuba abafundi bayifunde kunye nendlela umxholo onxibelelana ngayo neenjongo zexesha elibanzi.
- Umzekelo obonelelweyo: Yazisa ngomzekelo onomtsalane okanye ibali elinokusetyenziswa ngootitshala ukunika abafundi ekuqaleni kwesifundo. Oku kuhambelana neBali eliyintshayelelo kwiNcwadi yoMfundi.

Amagama angundoqo kunye nezibakala

Uluhlu lwamagama angundoqo aziswa kwisahluko, kunye neenkcazo. Iingcebiso ngendlela yokwazisa la magama ngokufanelekileyo (umzekelo, ukusebenzisa izixhobo ezibonwayo okanye ukubaliswa kwamabali asekwe kwimeko)

Isikhokelo/iindlela/amaqhinga

- Iingcebiso zokuFundisa: Iingcebiso ezisebenzayo zokufundisa isihloko ngasinye, ezinje ngendlela yokubandakanya abafundi, ukubangamaqela kwimisebenzi eyenziwayo, okanye ukwaziswa ngomsebenzi owenziwa ngezandla.
- Ukujongana neengcinga ezingezizo: Gxininisa iingcamango eziphosakeleyo eziqhelekileyo ezinxulumene nesihloko ngasinye kwaye unike izicwangciso zokuzilungisa

Iimpendulo zemisebenzi kwincwadi yomfundi

Nika iimpendulo kunye nengcaciso eneenkcukacha ngomsebenzi ngamnye okwiNcwadi yoMfundi, ebandakanya umntu ngamnye, isibini, kunye neqela leemvavanyo.

UKULUNGISWA

- IziCwangciso zoNgenelelo: Isikhokelo sendlela yokunika inkxaso abafundi abanobunzima kumbono othile.
- Imisebenzi ecetyisiweyo yokulungisa okanye ezinye iingcaciso zokuqinisekisa ukuba bonke abafundi bayayiqonda imathiriyeli.

UQIKELELO

- Isishwankathelo esinokuthi ootitshala basebenzise ukusonga isahluko baze babethelele iingongoma eziphambili.
- Imibuzo ecetyisiweyo yokubuza abafundi ukuba benze uphononongo lwezinto eziphambili ezithathwayo ekupheleni kwesifundo.

Umyalezo wombhali naba shicileli

Titshala othandekayo

Njengoko ungena kwigumbi lakho lokufundisela yonke imihla, awungeni nje kwindawo ezaliswe ziidesika kunye neencwadi zokufunda. Ungena kwindawo apho ikamva libunjwa khona, kwaye izinto zinokwenzeka. Ubambe amandla amangalisayo okukhuthaza, ukukhokela, kunye nokukhulisa iinkokeli zexesha elizayo, abaqambi, kunye nabatshintshi besimo.

Ngokwabelana ngokuthanda kwakho, wenza okungaphezulu kunokufundisa nje; utyala imbewu yobubele, inkalipho, intlonipho, kunye nobuntu kuyo yonke intliziyo eselula. Siyaqonda ukuba akusoloko kulula ngenxa yemiceli mingeni yokufundisa, ngakumbi kwiindawo ezingenazo izixhobo zokusebenza. Ngamanye amaxesha unokuva ubunzima kakhulu, kodwa ngalo mceli mngeni ojamelana nawo wenza umahluko wokwenene. Ubonisa abafundi bakho ukuba isakhono sabo asinasiphelo kwaye bayabonwa, baxatyiswe, kwaye bayakwazi ukuphumelela. Ukubeka uncumo ebusweni bomfundi ngamnye kubaluleke kakhulu! Yiyo loo nto izixhobo zethu zokufundisa zilapha ukuze zikuxhase. Ziyilwe kucingwa ngeenjongo zeCAPS, zijolise ekubandakanyekeni nasekudaleni indawo yokufunda apho wonke umntwana anokuzibona emelwe.



Imifanekiso, amabali, kunye nezifundo zibonisa ukuhlukahlukana kwemeko zendawo zethu, inceda wonke umfundi ukuba azive engoyena mntu ubalulekileyo kwanotitshala ngokufanayo nempumelelo yabafundi bakho. Sifake izixhobo ukuze uhlale unomdla kwaye usempilweni kuba siyazi ukuba xa uziva wonwabile, igumbi lakho lokufundela liyaphumelela. Ulonwabo lwakho aluphemeleli nje ukufundisa kwakho kodwa kwanobudlelwane obakhayo nabafundi bakho, abajonge kuwe ngethemba nenkuthazo.

UMzantsi Afrika upapashe uMthetho weMfundo esiSiseko (iBELA) ngowama-2024 ukusincedisa ekudaleni inkqubo ebandakanya wonke umntu. Indima yakho kulo mngqophiso ibalulekile, kwaye ukuqonda zombini i-CAPS kunye ne-BELA kuqinisekisa ukuba igumbi lakho lokufundela liyindawo apho abafundi bayilungiselele kakuhle impumelelo. Njengoko ufundisa, yazi ukuba awukhokeli nje kuphela abafundi bakho; ubumba ikamva loluntu lwethu, ilizwe lethu, kunye nehlalathi. Enkosi ngayo yonke into oyenzayo.

Singayisebenzisa njani lemixholo ibeyi mpumelelo

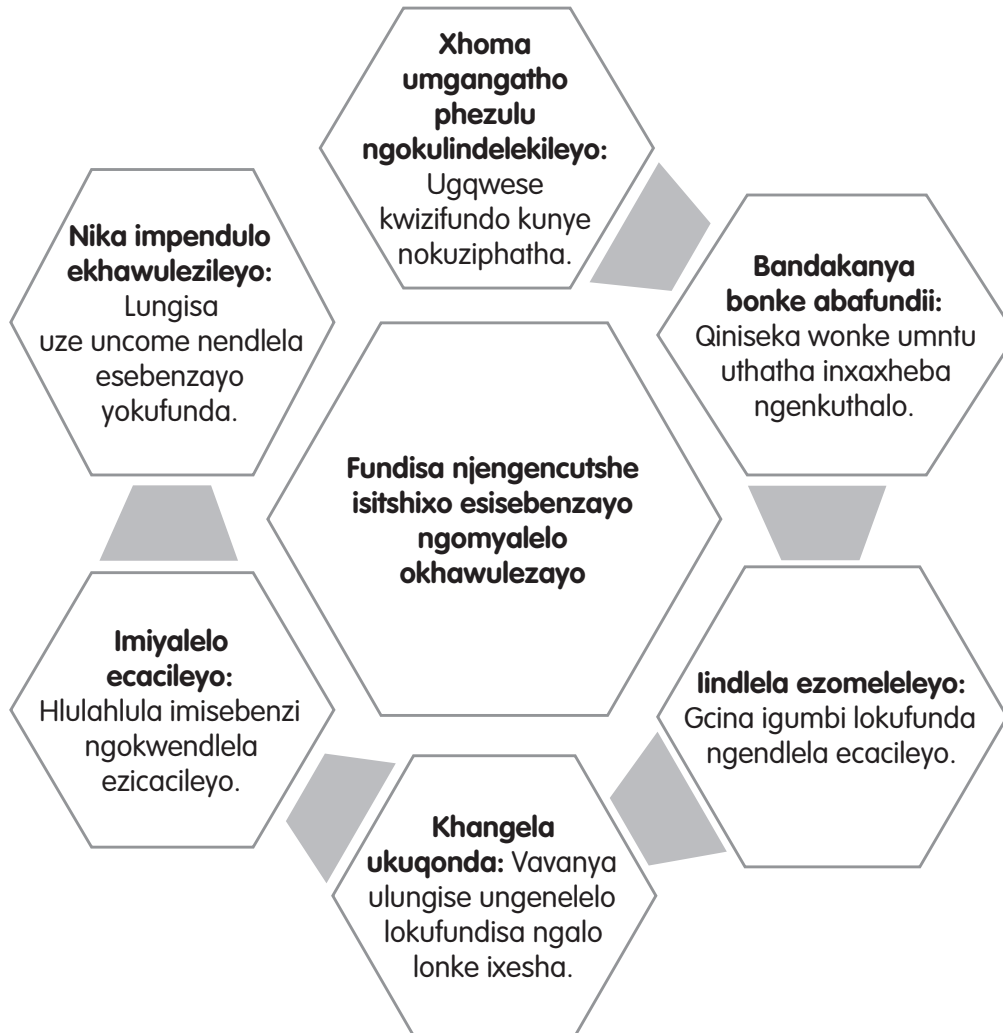
Wamkelekile kwibanga elisezantsi lesikhokelo sika tiitshala. Esi sisixhobo sokuncedisa ootitshala ekusebenzeni nokufundisa kumabanga 1; 2 kunye no-3. Lo mqulu usinika indlela ebonisa izenzo, nezixhobo ezijolise ekuphumeleliseni imiyalelo yakho nokuphucula indlela etyebileyo nokuthi abafundi bafunde ngamava.



Lo mbono uwonke usikhuthaza ngakumbi ekuqhubekeni ukucinga nokufunda okusingqongileyo apho kuxhotyiswa utitshala ngolwazi, izakhono zokufundisa okukhokhelela kwimpumelelo yabafundi. Lo mqulu usikhulisa ulwazi lokudibanisa nokufunda ngokusingqongileyo apho o tiitshala bangaqhubeka ngokukhulisa ulwazi lwabafundi olunempembelelo ezintle zempumelelo. Ngoko ke siyanimema ukuba nikhangele isikhokelo kuyo le nkqubo, ukuxhathisa, nokuqonda, nokuphucula indlela yokufundisa ngokugqibelelo nasekutshintsheni ukufunda ngamava egumbini lokufunda. Sisonke masixhobise abafundi ukuze baphumelele ezifundeweni nangaphaya.



Fundisa njengencutshe!



lingcinga ezisisixhobo sempilo

Kwilizwe lethu elingxamileyo, ezankqubo zakudala zokwetyisa iingcinga azisafani yokuphumza ingqondo kwimisebenzi yabo ebona bangonwabi, luxinizelelo lwengqondo, nokuxakeka echaza ubomi obungxamileyo.

Ukubizela umoyayindlela elula nesebenzayo yokulaeula ukuziphatha kwaye ikhulisa engqondweni. Ngokugxila ekukhupheni umoya ngenjongo, kunganceda ukupholisa iingqondo zabafundi kunye notishala ukwehlisa izinga loxinizelelo lwengqondo. Lendlela yokwenza ayiloli ngqondo kuphela kodwa ukunika ukuphola nokuzinza kwengqondo.

Uzetyisa njani iingcinga

Qalani ngoku fumana indawo ekululekiyo yokuhlala. Ingasisitulo okanye egadini yesikolo.

Qala ngokuphefumla: phefumla ngeempumlo ugcine umoya ubale ukuya kwisine semizuzu, emva koko uwukuphe uwulawule kangane mizizi esibhozo.

Ukuqonda ngodibaniso ezifundweni

Kancinci-kanci phefumla ubizela ukhuphe umoya, uvumele umzimba uphumle.

Ukudla umculo ozolileyo kuyawaphucula lamava, kwaye kunika uxolo.

Imizuzwana emihlanu ukuya eshumini kwanele ukupholisa ingqondo ngoluhlobo, ukunika ingqondo yokucinga ekungangade kuphele imini kusenjalo ukuba ulandele lenkqubo.

Ukusebenzisa umculo uphucula indlela yokufunda

Usenokusebenzisa iingoma ukufundisa izibalo ukuphucula isingqi kunye nengoma ibesisifundo. Lento inceda abafundi bacinge ngokufanelekileyo ukwenza iikumbulo zezifundo. Umzekelo, ukwenza umculo onesingqi ungenza abafundi babale bakhumbule ngaxeshanye. Umculwana wabantwana onesingqi ungabanceda bakhumbule iipateni zezibalo ngokuphinda-phindo lwengoma uncedisa ukukhulisa isigama sabantwana.

Ukuqonda ngongenelelo emfundweni

Injongo yongenelelo kwimfundi kukwakha isimo sokuba umfundi azive enexaniso, ehloniphekile kwaye exhaswa:

Iindlela zongenelelo kunye nobuchule wokuphunyezwe

Ungenelelo lwamasiko: Intlonipho nendibaniselwano yendlela esibona ngayo amasiko uhukenyoyenza abafundi bahloniphana.

Ungenelelo lokuhlala: Kukhuthaza imvisiswano ekuhlaleni noxibelelwano lokuhlala oluvumelekileyo nemvisiswano phakathi kwabafundi abasuka kwindawo ezohlukileyo.

Imisebenzi yongenelelo Ungenelelo: Qinisekisa ngendawo yokuhlala kunye nezixhobo ulungiselela ukufunda kunye nezixhobo zokufunda ukwenzela nabafundi abakhubazekileyo babenokuncedakala.

Ungenelelo ngokwentetho: Baxhase ngemvelaphi yeentetho ezahlukeneyo, ngentetho ezingafaniyo okanye inkxaso yeentetho.

Isalathisi semisebenzi:

Uphuhliso lobungcali: Xhobisa abafundisi ntsapho ngoqeqesho olumele ootishalanokwazi abafundi nezidingo zabo ezahlukeneyo.

Ukusebenza bonke befumana inkxaso: Misa intsebenziswano kunye namakhaya abantwana, nabahlali, neendlela zenkxaso kuze uqubisane nezidingo zomfundi ngamnye ngokuchanekileyo.

Ukukhuliswa kwenkqububo emfundweni: Dibanisa imigaqo yemfundo kwinkqubo yesikolo nomzobo opheleleyo wenfundo ukuphakamisa ungenelelo.

Uvavanyo oluqhubekayo: Rhoqola ukuvavanya ufake ngobuchule ukuqinisekisa ngongenelelo nokulingana kubafundi.

Incwadi yomfundi yiziswa ngebali: Chaza imixholo ekufuneka kufikelelwe kuyo. Umzekelo, chaza ibali ngamaqela amabini ezilwanyana adibanayo esuka kumaqela amakhulu.

Umbono nokusebenzisa kumlinganiselo wokuhlola (imizuzu -15):

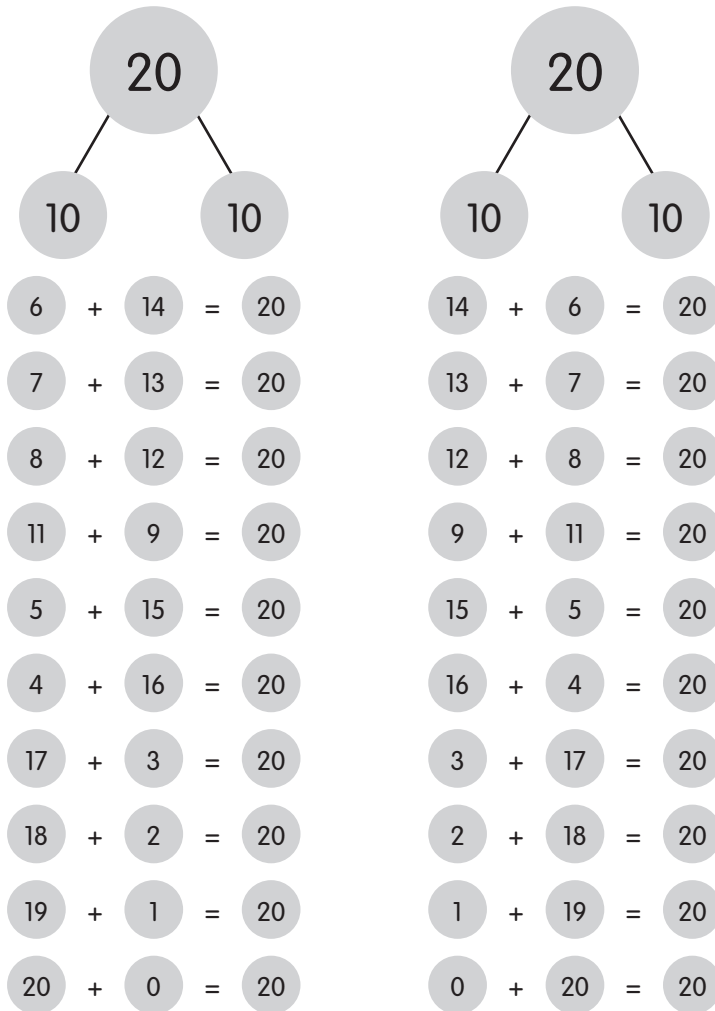
Sebenzisa Ukulawula:

Abafundi mabalawule ukuze babonise $10 + 10$.

Abafundi mababale iibokisi babone

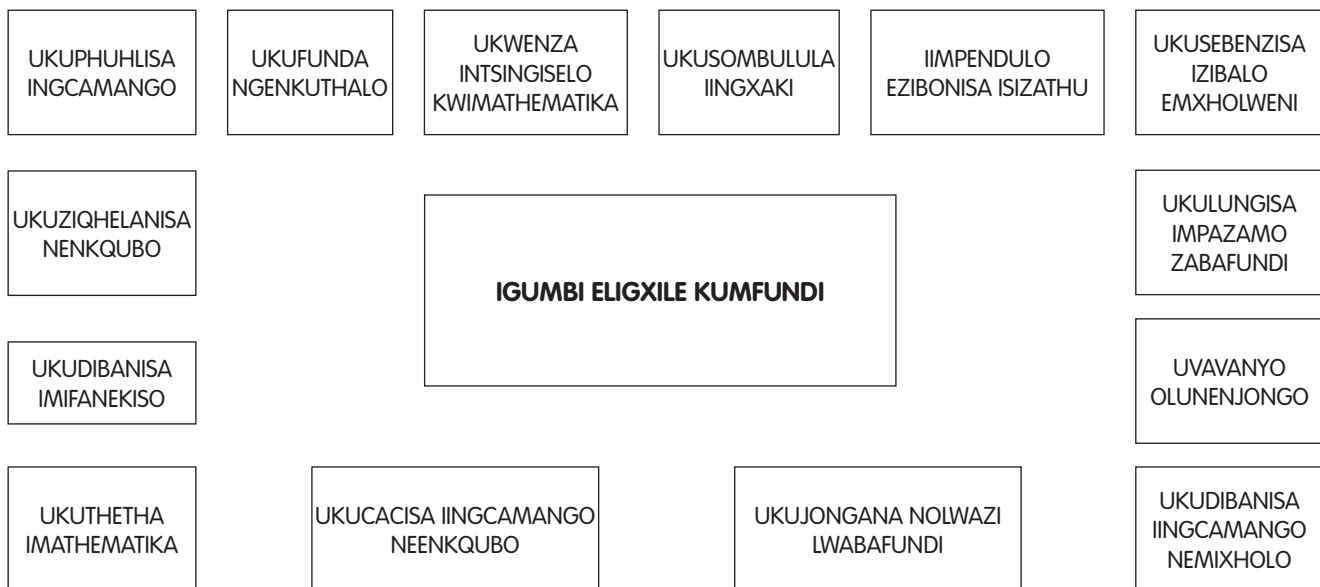
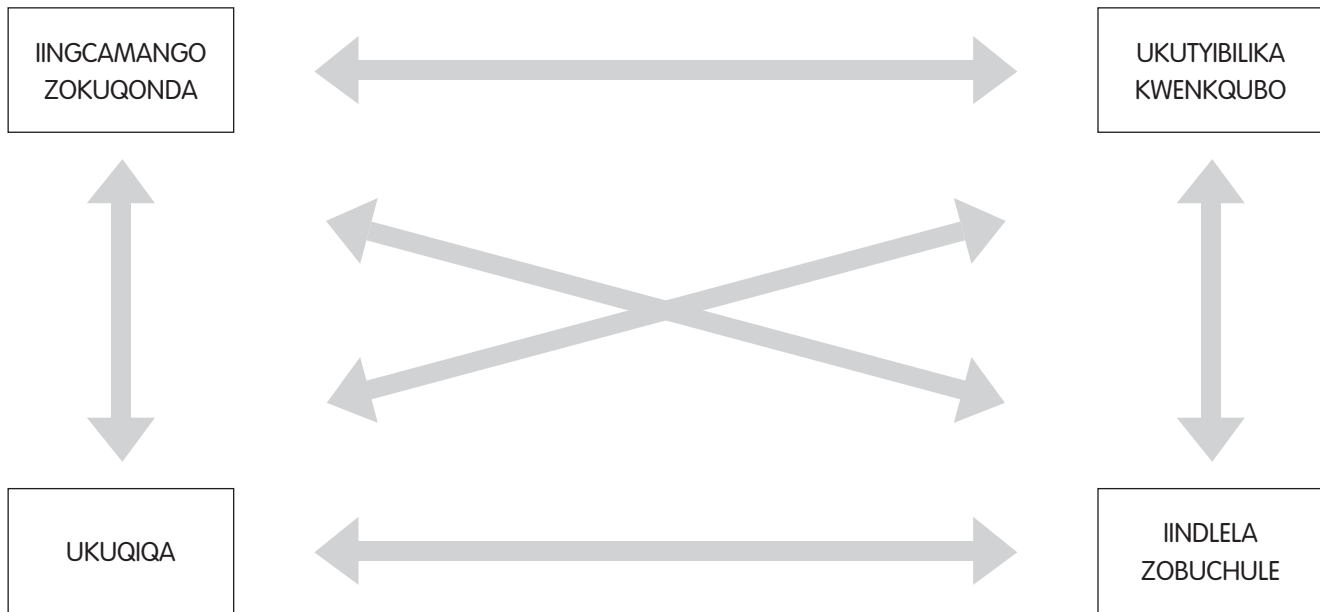
Ukuba zingaphi zizonke

AMAQABANE KA-20



Ukufundisa izibalo ngokuqonda

Ukuqonda kuquka indlela yokucinga ngokugxeka kunye nokuziqhelanisa ngoksebenzisabenza ngokukhawulezayo nobudlelwane besihloko okanye iingcinga. Idlulela ngaphaya kokuqokelela ulwazi, inyaniso, okanye idata, iphinde idlule isakhono somashini ukulandela amanqanaba omgaqo. Kwizibalo, ukuqonda ngokubonisa ngokuthi umfundi azithethelele abe namabhongo ngeMathematika, okanye aphenjule acacise indlela acinga ngayo ngemithetho ye Mathematika (CCSSO, 2010). Umzobo ongezantsi ubonisa i modeli yesakhelo sokufundisa nokufunda iMathematika, lqaqambisa imicu emine engundoqo kubuchule bezibalo:



Ukuqonda umxholo: Ukubamba inkqubo zokubala, imisebenzi, kunye nobudlelwane.

Ukuqhelana nemigaqo: Ukusebenzisa imigaqo ngokuchanekileyo, nangokwaneleyo, nokulungela iindidi zonke zabandi.

Ubuchule bezinga lokuphumelela: Uyakha, umele, usombulula iingxaki zezibalo.

Ukuqiqa: Ukucinga, ukucacisa, kunye nokuthethelela iinkqubo zemathematika kunye nezisombululo.

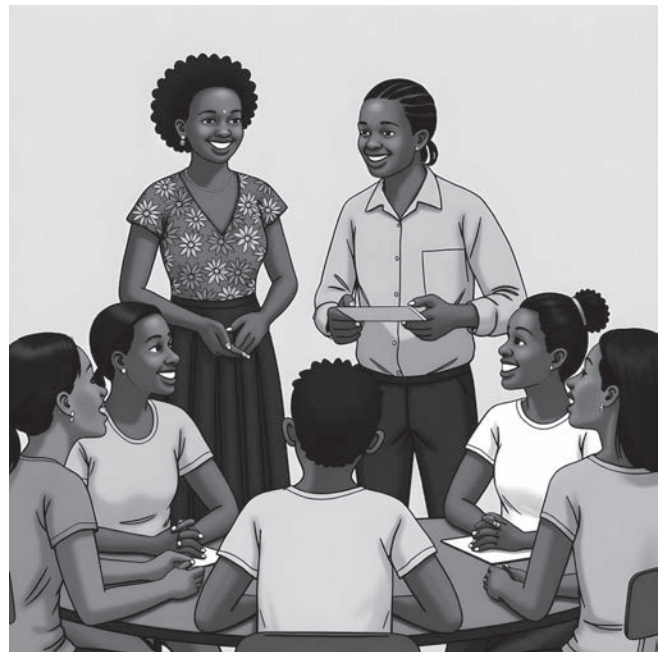
Lemigaqo iyanxibelelana kubafundi abathatha inkxaxheba, nto leyo igxininisa ukufunda, nokuphula, kokusombulula iingxaki, ukuze wenze ingqiqo ngezibalo.

Abafundi bagxila ekuthatheni inkxaxheba ngokuziqhelanisa nokufunda, behlanganisa bemele ukuchaza bevala izithuba ngowazi lwabo. Xa iyonko lendlela, injongo zayo kukufundisa izibalo nokuqonda nendlela eqondakalayo nedibeneyo.

Sebenzisa izinto eziphathekayo:

Umzekelo webali: "Ehlathini kukho amasele ama-3 kwaye amabini afika ahlala nawo. Mangaphi amasele ewonke?"

Abafundi mabasebenzise izinto eziphathekayo $3 + 2$. Bangadibanisa iibloko babale baze babone ukuba zithini iziphumo.



Isalathiso Sokufundisa Ngezixhobo

Indlela eyakhiwe ngayo incwadi yomfundo

Incwadi zabafundi zikunika ubuninzi bokuziqhelanisa namathuba ngamnye, intanga , iqela, kunye nomlinganiselo wokuhlola egumbini labafundi, incedise ekuqondeni nasekufundeni. Kubalulekile ukuziqhelanisa nophuhliso lezakhono, nencwadi kubkunyekanywe nemidlalo eyonwabisayo, ibonelela abafundi ize yongeze nokubethelela ukuqonda kwabo. Lemilinganiselo yokuhlola ayiphakamisi ukuqhubeka kovavanyo kuphela, koko idala amathuba obumnkunyeyi bokwakha amava okufunda.

Amabali	Amabali adityaniswa kukuphucula ukugcinwa kwenkumbulo akunye nokuqonda kokudityaniswa kwe ngcamango kwimixholo ehambelanayo kunye nokukhuthaza intelekelelo yothethathethwano .
Umsebenzi Ozimeleyo	Le kukwakha ukuzeyisa kunye nokucinga ngokugxeka , ukuxhobisa abafundi bathathele kubo izakhonozokufunda kunye nokwakha ukuzisombululela iingxaki ngezakhono.
Iintanga kunye namaqela omsebenzi	Imisebenzi yentsebenziswano igcina unxibelelwano, noksebenzisabenza kunye , nesakhono sokuqonda izinto ezahlukeneyo kunye nembono ezahlukeneyo, ngelixa kuphakanyiswa izakhono zentlalo .
Umlinganiselo Wokuhlola Kubafundi Bonke	Lemilinganiselo yokuhlola iphakamisa iingcinga zoluntu kunye nokuqokelela ukufunda, ukukhuthaza abafundi babelane ngamava xa bethatha inxaxheba ekuxoxeni.
Amagama Amatsha	Oluphawu luchaza amagama amatsha ukucacisa ngokufumameka ngendlela efikelekayo ukunceda abafundi baqonde, bakhumbule ukuba athetha ukuthini amagama.
Ixesha Lokuphonononga	Okukufunda luphawu oluphakamisa abafundi ngendlela ebanzi ekubakhuthazeni ngolwazi olufunekayo, kunye nengcinga nengcinga, nemibuzo ecaphukisayo kwinjongo zokukhuthaza nokuphonononga ngokusungula izinto ezintsha nokusombulula iingxaki.
Imilinganiselo Yokuhlola	Ngo qeqesho lwemisebenzi, okukuhlola kuvsebenzisalela ubuchule kunye nokusungula izinto ezintsha , buvumele abafundi basebenzise ityhiyokanyeyi nolwazi kwimeko zelizwe kunye nokuvsebenzisalela ukucinga ngokugxeka .

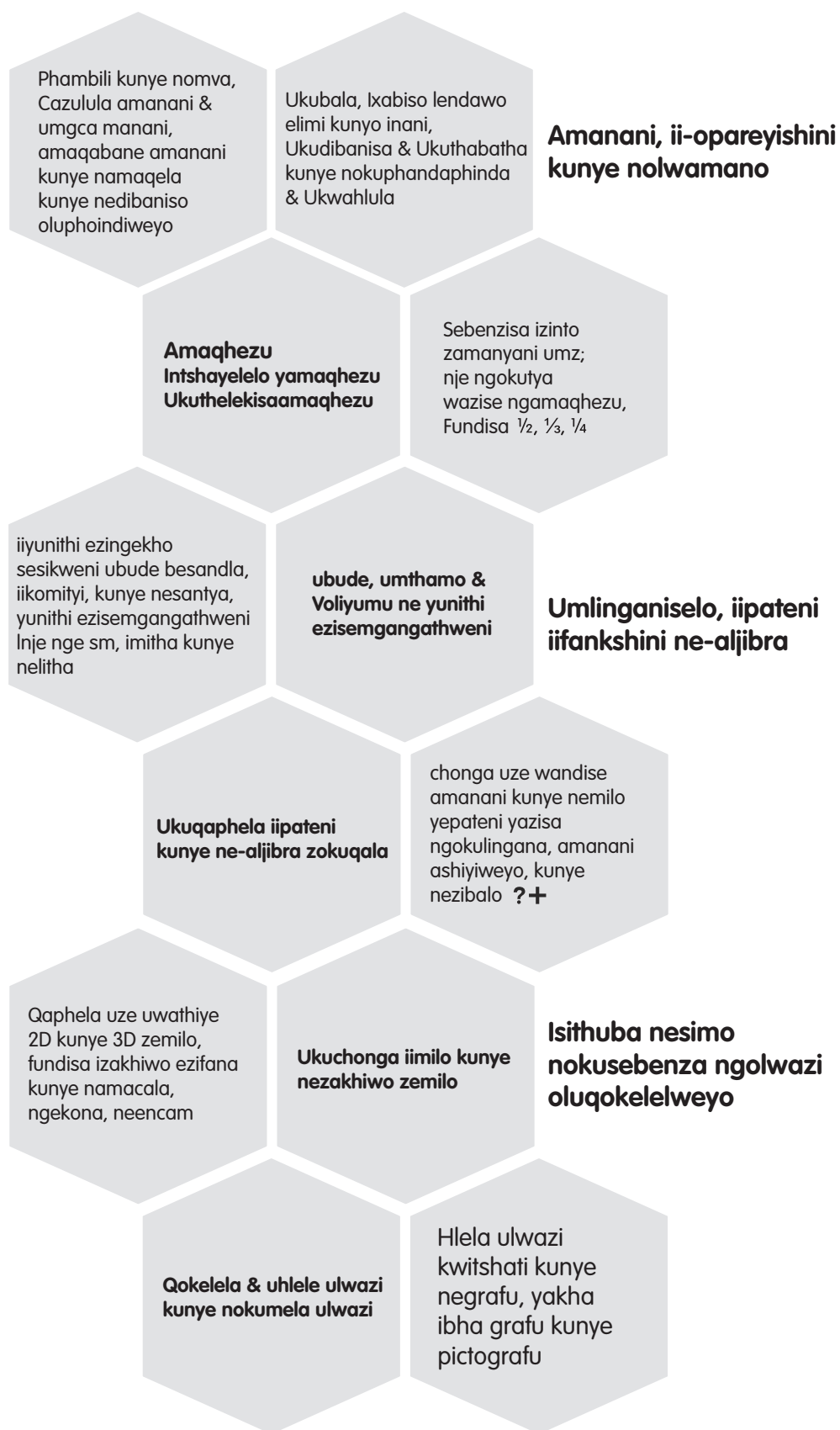
Isakhiwo sencwadi zomfundi lesi-3 se Mathematika

- Isiqulathiso sakhwiwe ukuqala **kwisiseko zesakhono** njengokubala kunye nendawo yenani, kancinci kancinci kwaziswa **iingcamango ezininzi ezintsokothileyo** njengama qhezu, iipateni, kunye nedata.
- **Isihloko ezidityanisiwe nenkqubela:** Imisebenzi yamanani yondlalwe ****kumsebenzi ophantsi ukuze uqonde amaqhezu, iipateni ezikusa ekuqaleni ukucinga nge aljibra, umlinganiselo owazisa iingcamango ezizalana nobukhulu kunye nobungakanani, kunye nedata eyakha inani ekuthelekiseni kunye nezakhono zegrabu.
- Le **nkqubela yesakhiwo** iqinisekisa ukuba ingcamango ziyabethelelwa kunye nokulungisa abafundi balungiselelwa ilixa elizayo, ukwakha kuhambelana nokongezwa ukufunda ngamava.

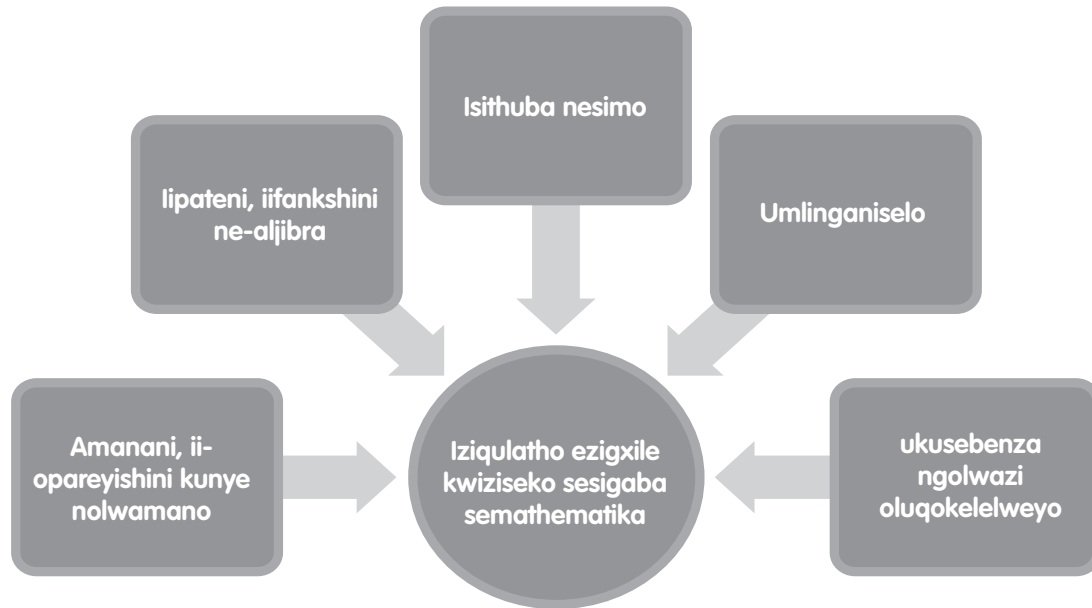
Ukuhamba kunye nokudityaniswa:

- Izihloko ze-ATP zenziwe ukuba **ziqale ngeziseko nezakhono** (nje ngokubala kunye nexabiso lendawo) kancinane kancinane kwaziswa kakhulu ubunzima beengcinga (nje ngamaqhezu, iipateni, kunye nedata).
- **Isihloko ngasinye sidityaniswa nendawo zezifundo zangaphambili:** Inani ne-opareshini eyakhiwe kwisiseko sokuqonda amaqhezu, iipateni ezikusa ekuqaleni ukucinga nge aljibra, umlinganiselo owazisa iingcamango ezizalana nobukhulu kunye nobungakanani, kunye nedata eyakha inani ekuthelekiseni kunye nezakhono zegrabu.
- Isiqulatho sekota sakhwiwe ngolo hlobo **kwinkqubela, nendlela yokudibanisa**, eqinisekisa ukuba ingcamango ziyabethelelwa kunye nokulungisa abafundi balungiselelwe ilixa elizayo.
- Ekupheleni kwekota kukho imibuzo ebonisa indlela yokudityaniswa kwezihloko nemibuzo yazo. Le ndlela yenzela abafundi basebenzise ulwazi lwabo nangaphaya kwendlela ezahlukeneyo, enemibuzo eyahluke ngobunzima ukunceda izakhono ezahlukeyo ngamanqanaba kunye nokubethelela ukuqonda.





Ukucazulula iKharityhulam (CAPS)



Ukufunda ngokomxholo

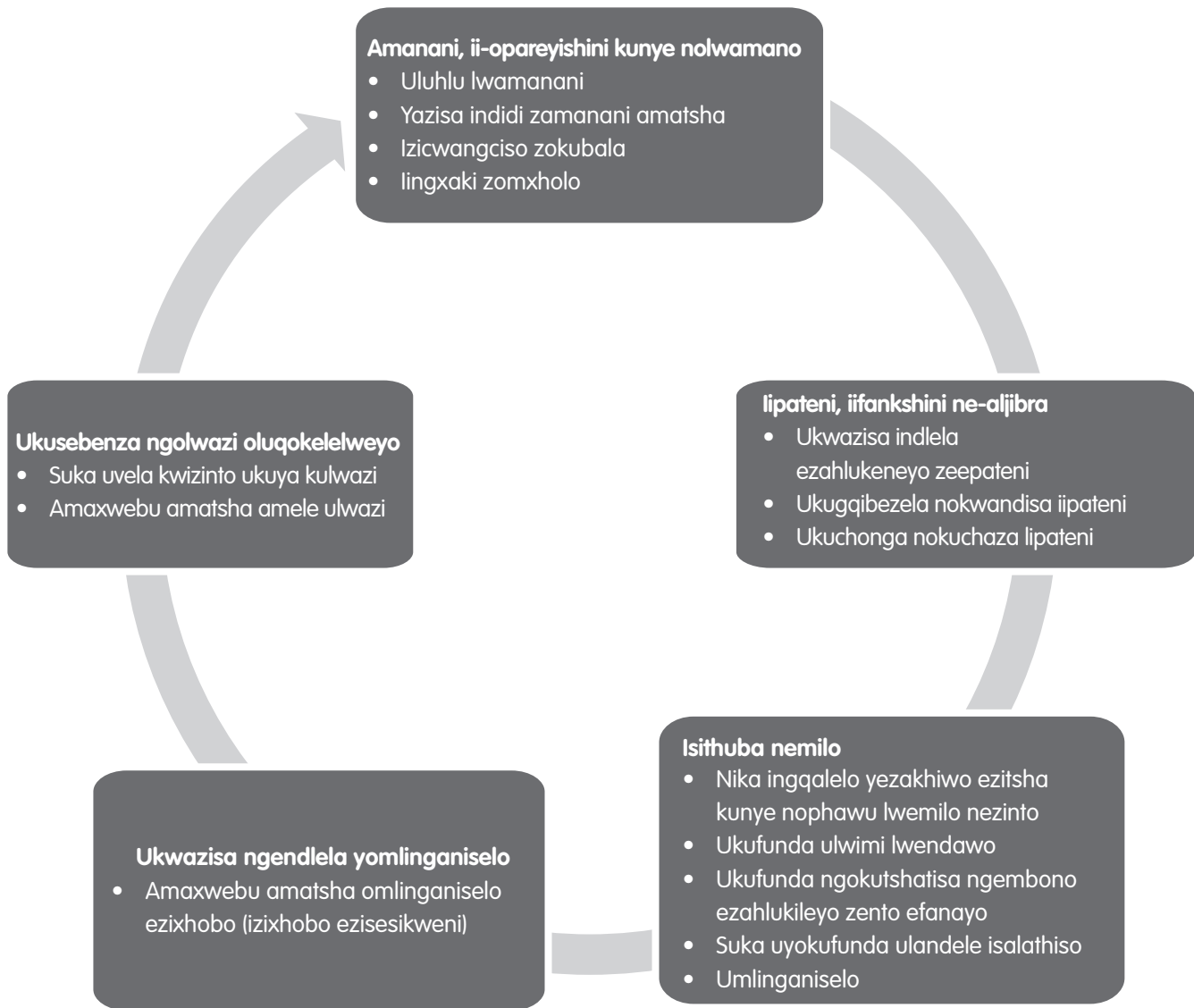
Amanani, umsebenzi nobudlelwana	iipateni, amaqhezu nezibali zamanani (Aljibra)
<p>Kwesigaba, ingcinga zamanani kubafundi zikhula ngokuthi basebenze ngezinto eziphathekayo zokubala, babale beqokelela izinto, bohlule baze badibanise ubungakanani, batsibe xa bebala ngendlela ezahlukileyo, basombulule iingxaki zomxholo(amagama), baze bakhe bacazulule amanani.</p> <p>Ukubala kunceda abafundi bakhe ingcamango zamanani, izibalo zentloko, ukuqikelela, ukubala ngezakhono kunye nokuqonda kweepateni.</p> <p>Ukwakhiwa kwamanani nokufunda iindlela zokwenza ubalo lubelula.</p> <p>Ukusombulula iingxaki zomxholo zenza abafundi bathethe neziqo zabo bathethe ngeencinga ngokuba ngemizobo kunye namaphawu. Abafundi bakha ulwazi lweziseko zemisebenzi ka dibanisa, thabatha, phindaphinda kunye nokwahlula.</p> <p>Abafundi bakha ingcamango zamaqhezu ngokuthi basombulule iingxaki ezibandakanya ukwahlulwa kwezinto eziphathekayo nangoksebenzisabenzisa imizobo. Iingxaki zifanele ukuquka izisombululo iza neziphumo ezilininani eliphelileyo leentsalela okanye amaqhezu. Ukwahlula akufanelanga ukuquka izinto ezipheleleyo qha, kodwa nokufumana amacala engqokelela ezinto. Kwesigaba, abafundi abalindelekanga ukufunda okanye ukubhala amaqhezu amaphawu.</p>	<p>Kwelinqanaba, abafundi basebenza ngeepateni zamanani iipateni zamanani (umzekelo ukubala ngemitsi); kunye neepateni zejiyometri (umzekelo. imifanekiso).</p> <p>Abafundi mabasebenzise izinto eziphathekayo, imizobo kunye iifom ezomfuziselo ukukhuphela, ukwandisa, ukuchaza nokwakha lipateni.</p> <p>Ukukhuphela ipateni kunceda abafundi babone ingqiqo zokuba zenziwa njani lipateni. Ukwandisa ipateni kunceda abafundi bakhangele ukuba bayazilandela na ingqiqo zepateni.</p> <p>Ukuchaza ipateni kunceda abafundi bakhe ulwimi lwabo lwezakhono. Ukungqwalisa ingqiqo yepateni yandlala isiseko sokwakha izakhono zokucinga kwi-aljibra.</p> <p>Iipateni yamanani ixhasa ingcamango yamanani ukukhulisa kunye nemisebenzi yengqondo ukwakha manani, amanani, imisebenzii kunye nobudlelwane.</p>

Indawo, imilo (jiyometri)	Umlinganisa
<p>Kwesisigaba abafundi banikela ingqalelo kwizinto ze3-D, 2-D), iimilo, indawo kunye nembonakalo.</p> <p>Abafundi bazaku phonononga izakhiwo zezinto ze 3-D kunye ne 2-D zemilo ngokuhlela, ukucazulula, ukuchaza nokuthiya ngamagama.</p> <p>Abafundi bazoba iimilo baze bakhe izinto.</p> <p>Abafundi baqaphela bachaze iimilo kunye nezinto ezibangqongileyo ezifana neemilo nezinto zemathemetika.</p> <p>Abafundi bachaza indawo yezinto, ngokwabo kunye nabanye besebenzisa amagama afanelekileyo.</p> <p>Abafundi bayalandela banikezele ngembonakalo.</p>	<p>Kwesisigaba ingcinga zomlinganiselo zikhula ngokuthi basebenze ngezinto eziphathekayo zokubala, babale beqokelela izinto neemilo, ukufunda ngezakhiwo zobude, umthamo, ubunzima, indawo kunye nexesha. Abafundi balinganisa isakhiwo zemilo nazinto ezisebenzisa iyunithi ezingekho mgangathweni apho kufaneleke khona, njenge zandla, izantya, izitya njalo-njalo.</p> <p>Abafundi bathelekisa izixa ezahlukileyo ngoksebenzisabenzisa amagama okuthelekisa njengo mde/mfutshane, inzima/ilula njl-njl.</p> <p>Abafundi bachazelwa ngobunzima okanye ubungakanani bezinto ezifana nograms, kilograms, mililitha, litha, sentimitres, mithazi. Umlinganiselo wokuhlola unxulumene nexesha ekufuneka kwakhiwe ukuqaphela ukuba abafundi baliqonde uhambo lwexesha kufuneka liphuhlisiwe phambi bekwazi ukulifunda ixesha.</p>
<p>Ukusebenzisa ulwazi oluqokelelweyo</p>	
<p>Kweli inqanaba abafundi basebenza nge:</p> <p>Ukuhlela,ukumela nokuchaza izinto ezihleliweyo ezisetyenziswa kwisakhono sabafundi bakhula msinyane kwizindlela zokufunda. Lendlela ikhulisa isakhono esizakusetyenziswa ngabafundi xa kusakhiwa iData.</p> <p>Abafundi banganakho ukunikwa ingqokelela yezinto baze babuzwe indlela yokuzihlela. Umzekelo, banikwe amaqela afanayo endidi ezinto zokubala ezinjenge zinto zokubamba isonka, ipete zepesika, imicinga, iziciko zebhotile kuze kubuzwe abafundi bazihlele ngokwamaqela azo.</p> <p>Abafundi baze zazobe umfanekiso wamaqela abawenzileyo. Ngoluhlobo abafundi baya rekoda ngezinto abawenzileyo. Baphendula imibuzo ngamaqela abawenzileyo. Apho abafundi bafumana ithuba lokwenza umjikelo opheleleyo wokuqonekelela ulwazi, bangaba nengqalelo yokuhlalutya ukumelwa abakunikiweyo. Kuyacetyiswa ukuba kwi kota 4 abafundi bahlalutye (ukuphendula imibuzo) oku kwepictografu ezi-2.</p>	

Isalathisi Sokufundisa Ngezixhobo

Umxholo	Isihloko	Inani lezifundo				
		Ikota 1	Ikota 2	Ikota 3	Ikota 4	Amanqaku
Amanani, iipareyishini kunye nolwamano	Zonke izihloko zamanani, iipareyishini kunye nolwamano	26	22	19	27	94
lipateni iifankshini nealjibra	lipateni yamanani	3	3	3	3	12
	lipateni zejiyometri	1	1	1	1	4
Isithuba nemilo (Ijiyometri)	imilo 2-D	2		2		4
	imilo 3-D		3	3	1	7
	Indawo, uqhelaniso neembono		2	3		5
	Amacala		2		1	3
Umlinganiselo	Ixesha	3	2	3	2	10
	Ubude		2	2		4
	Ubunzima		2		1	4
	Umthamo/Voliyum	2			1	3
	Umjikelo			1		1
	Indawo				2	2
Ukusebenza ngolwazi oluqokelelweyo	Umjikelo wolwazi opholeleyo	3		3		6
	Umjikelo wolwazi oluqokelelweyo		1		1	2
Izifundo		40	40	40	40	160

Umxholo nengcamango zemephu



Iindlela zokufundisa iMathematika ngokuqonda nangempumelelo Kwibanga 1 – 3

Ukufundisa ngokuqonda kuthetha ukwakha ulwazi olunzulu, hayi ukukhumbula iindlela nje zokuphendula.

Ezi zicwangciso zilandelayo zilungele abafundi bebanga 1-3, zithatha ingqalelo kumxholo weCAPS kunye neendlela ezifanelekileyo zokufundisa iMathematika eMzantsi Afrika.

<p>Isicwangciso 1</p> <p>Sebenzisa izixhobo ezibonakalayo, imifanekiso, nezibalo</p>	<p>Izinto ezibonakalayo: sebenzisa izinto ezifana neebhotile, amaso, izitena iimbotyi njalo-njalo ukuze abafundi baboneze xa befunda izibalo.</p> <p>Imifanekiso: sebenzisa imizobo, imigca yamanani, kunye neetshati ukwenza iingcamango zibe lula.</p> <p>Izibalo: sebenzisa amanani kunye neendlela zokubala ukuze abafundi baqonde umxholo.</p> <p>Umzekelo: Xa ufundisa ukudibanisa, qala ngamanqaku ephepheni, uze usebenzise iziciko phambi kokuba ube nezibhalo ezifana no $3 + 2 = 5$.</p>
<p>Isicwangciso 2</p> <p>Fundisa ngendlela ebonakalayo nemidlalo</p>	<p>Dibanisa imidlalo, iingoma, kunye nemidlalo yentshukumo ukwenzela ukuba abafundi bafunde ngolonwabo.</p> <p>Sebenzisa izibongo zokubala ukuze abafundi baqonde izibalo. Bandakanya abafundi kwimisebenzi yeqela ukukhuthaza ukuthetha ngeMathematika.</p> <p>Umzekelo: Sebenzisa umdlalo unochele ukufundisa ukubala nokudibanisa.</p>
<p>Isicwangciso 3</p> <p>Qhagamshela iMathematika nobomi bemihla ngemihla</p>	<p>Fundisa abafundi ukusetyenziswa kweMathematika kwiimeko eziqhelekileyo, ezifana nokusebenza ngemali, ukulinganisa izinto okanye ukufunda ixesha.</p> <p>Sebenzisa izinto abafundi abazaziyo njengemali, amacephe, okanye iintsuku zeveki.</p> <p>Umzekelo: Xa ufundisa umlinganiso, yenza abafundi bathelekise ubude bepensile zabo okanye balinganise amanzi kwiikomityi ezahlukeneyo.</p>
<p>Isicwangciso 4</p> <p>Phuhlisa izakhono zokubala nokucinga ngokweNani</p>	<p>Khuthaza abafundi ukubala besiya phambili nobuya umva usebenzisa imibongo kunye neempepha zokubala.</p> <p>Fundisa abafundi iindlela ezahlukeneyo zokubonisa amanani (umz. $5 = 3 + 2$ okanye $5 = 4 + 1$).</p> <p>Sebenzisa itshathi yamanani kunyenezakhelo zebhondi zeshumi ukwenza ukufunda kube lula.</p> <p>Umzekelo: Sebenzisa iingcongolo zokubala ukunceda abafundi baqonde indawo yamanani.</p>
<p>Isicwangciso 5</p> <p>Khuthaza ukuthetha nokucinga ngemibuzo</p>	<p>Yenza abafundi baxoxe ngezimpendulo zabo, bangabi nje bephendula ngaphandle kokuqonda.</p> <p>Sebenzisa imibuzo efana ne “Uyifumene njani impendulo?” okanye “Ungasibonisa esinye isisombululo?”</p> <p>Fundisa amagama eMathematika nge mabali kunye nezivakalisi eziqalisiweyo.</p> <p>Umzekelo: Endaweni yokuthi “5 + 3 = 8,” khuthaza abafundi bathi “Ndiyiqala kwi-5 ndize ndibale ezintathu ezongezelelweyo, ndifike kwi-8.”</p>

<p>Isicwangciso 6</p> <p>Sebenzisa iitoys zeMathematika nezixhobo ezibonakalayo</p>	<p>Sebenzisa itshathi zamanani, iziphu, kunye neetoys zedijithali.</p> <p>Bonisa abafundi imifanekiso ephathekayo yesibalo ukuze bafunde ngcono.</p> <p>Sebenzisa imisebenzi yokuhlalutya kunye nokwenza iipateni ukuphuhlisa ukucinga okuhle.</p> <p>Umzekelo: Sebenzisa itshathi yamanani ukubonisa ukubala ngee-2s, 5s, kunye nee-10s.</p>
<p>Isicwangciso 7</p> <p>Fundisa ukusombulula iingxaki ngendlela elula</p>	<p>Vumela abafundi bacinge nzulu ngokubabuza iingxaki ezineendlela ezininzi zokuzisombulula.</p> <p>Khuthaza abafundi basebenzise izinto zabo zokudlala, imizobo, okanye imisebenzi yeqela.</p> <p>Xhobisa abafundi ukuba bazame ukusombulula iingxaki ezibangelwa zizibalo kwiimeko zobomi.</p> <p>Umzekelo: Buza abafundi, “Kukho ii-apile ezi-3 kwibhasikithi enye nezi-4 kwenye. Zingaphi zonke?”</p>
<p>Isicwangciso 8</p> <p>Khuthaza ingqondo ekhulayo nokuzithemba</p>	<p>Qhelisa abafundi ekuxhomekekeni kumzamo wabo, hayi kuphela iziphumo.</p> <p>Fundisa abafundi ukuba iimpazamo ziyinxalenye yokufunda. Bandakanya abafundi kwimidlalo efundisayo ekhuthaza ukusebenzisana.</p> <p>Umzekelo: Ukuba umfundi uthi “2 + 2 = 5,” vumelani ukuba baxoxe ngokubala kwakhona ukuze bafike kwisombululo esifanelekileyo.</p>
<p>Isicwangciso 9</p> <p>Sebenzisa Itekhnoloji Ngokufanelekileyo</p>	<p>Dibanisa ii-apps zemfundo, imidlalo yeMathematika ye-intanethi, umabonakude, iprojektha njalo-njalo.</p> <p>Dlala iividiyo ezinemifanekiso yokubala ukwenza iingcamango zibe lula.</p> <p>Sebenzisa iimidlalo zokunxibelelana kunye nezixhobo ezisebenzisanayo.</p> <p>Umzekelo: Sebenzisa umdlalo wokubala osebenzisanayo apho abafundi batsalela badibanise amanani ngokolungelelwano oluchanekileyo.</p>
<p>Isicwangciso 10</p> <p>Linganisela ukuqonda, hayi ukukhumbula</p>	<p>Sebenzisa iindlela ezahlukeneyo zokuhlola, ezifana nokujonga abafundi ngexesha lomsebenzi, imisebenzi yezandla, kunye namabali.</p> <p>Nikezela ngemisebenzi yokuthetha kunye neyezenzo, hayi amaphepha emibuzo kuphela. Khuthaza abafundi ukuba bachaze indlela abafike ngayo kwisombululo zabo.</p> <p>Umzekelo: Endaweni yovavanyo oluqhelekileyo, vumela abafundi babonise iipateni zamanani besebenzisa amaso okanye imizobo.</p>

Isicwangiso sokufundisa

Isihloko	Umxholo	Ixesha (iiveki)	Ixesha (iiyure ngeveki)
	<ul style="list-style-type: none"> • Uvavanyo lokuqala: Masibone uba wazi ntoni 		
Ukwakha Amanani	<ul style="list-style-type: none"> • Ukubala ngengqondo: ulwazi, ukuwasebenzisa (dibanisa, thabatha, phinda-phinda, ukwahlula amanani) • Bala izinto ngokuthembekileyo, uqikelelo • Amanani: simboli, amagama azo • Chaza, thelekisa, landelenanisa • Ixabiso lendawo • Ukusombulula iingxaki: dibanisa, ukwehlula, phinda-phinda • Amaqhezu • lipateni ezinzima namanani amakhulu 	10	4.5
Ukusebenza ngamanani	<ul style="list-style-type: none"> • Izibalo zengqondo: indlela ezahlukeneyo zokwenza izibalo, iifomula • Bala izinto ngokuthembekileyo, uqikelelo • Amanani: simboli, amagama azo • Chaza, thelekisa, landelenanisa • Ixabiso lendawo • Ukusombulula iingxaki: dibanisa, ukwehlula, phinda-phinda • Amaqhezu: ulwahlulo iyunithi enye ngowamaqhezu • Ulwazi lwangaphambili • Uvavanyo lwezakhono, iikhonsepthi 	8	4.5
Imilinganiselo	<ul style="list-style-type: none"> • Ixesha: iwotshi, intsuku zeveki, ikhalenda • Izixhobo zokulinganisa umthamo/imassi • Imilinganiselo yeemilo, ubume, isilathisi • Uvavanyo lwezakhono, iikhonsepthi 	6	1
Ijiyometri	<ul style="list-style-type: none"> • Ukwazisa inani • Ukuhlalutya iimilo • Ukwakhiwa kweemilo ezahlukeneyo • Ukusebenzisa iipateni ezinzima nezinzulu • Uvavanyo lwezakhono, iikhonsepthi 	6	1
Ukusebenza ngedatha	<ul style="list-style-type: none"> • Ukuqokelela nokuhlalutya idatha • Ukusebenzisa iigraphu ezahlukeneyo neetafile • Ukufunda iiperesenti nokuhlalutya iinkcukacha 	4	0.5



IMathematika • IBanga 3 • Ikota 1

+ (Dibanisa)

- (Thabatha)

= (Zenza)

Ikota 1

Umxholo: Ukubala

Iimpendulo kwiincwadi zemisebenzi

Bala usiya phambili uphinde ubuye umva:

Iphepha 3

Fakela amanani awashiyeayo

- a. 17; 18; 19; **20; 21; 22**
b. 54; 53; 52; **51; 50; 49**
c. 95; 96; 97; **98; 99; 100**
d. 180; 179; 178; **177; 176; 175**
e. **146; 147; 148;** 149; 150; 151

2. Ukuqonda kwenani nokubhala amaphawu:

Tshatisa amagama amanani namaphawu azo

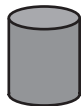
- a. Amashumi amahlanu anesithathu **53**
Amashumi nesixhenxe anesibhozoo **78**
Amashumi alithoba anesibini **92**
- b. 15

3. isiseko sezibalo (Ukudibanisa nokuthabatha ukuyokutsho kuma-20)

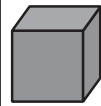
- a. 12 iorenji + 5 ngaphezulu = 17
- b. $15 - 6 = 9$
- c. $18 \text{ ilekese} - 7 \text{ ilekese} = 11$

4. Ukuqonda imilo ze- 3D

A- Isilinda



B- Ityhubu



b. 15

Ukuziqhelanisa nokuzimela nesiphelo

5. Ixsha

- a. Kungolwesingaphi namhlanje?
- b. Ngubani umhla ngomso omnye?

(Iimpendulo zabo abafundi. Iimpendulo mayibe nawo umfanekiso womgangatho wokuqonda kumyalelo awunikiweyo, eka 'a' impendulo mayibe lusuku ebekuthathwe uvavanyo, eka 'b' impendulo mayibe lusuku olulkunyeelayo lokuthathwa uvavanyo.)

6. Ukusombulula ingxaki

- a. inyanga eyesithathu enyakeni - EyoKwindla
- b. Mvulo, Lwesibini, Lwesithathu, Lwesine, Lwesihlanu, Mgqibelo, Cawe
- c. Ukuba kungoMvulo namhlanje, iyakuba ngowuphi umhla emva kwentsuku ezine? Lwesihlanu
- d. ULameez une R15. Uthenga into yokudlala nge R9. **Ebene R6 eshiyekileyo**
- e. Ibhasi inezitulo izingama 20, izitulo ezisi 7 sele sezihleliwe. Zingaphi izitulo ezingasebenzanga?
 $20 - 7 = 13$ izihlalo ezikhoyo

Umxholo: Ukubala usiya phambili nokubala ubuya umva ngoononye uqala nakweliphi inani phakathi kwe- 0 ukuya kwi- 100

Intshayelelo	Izinto zokusebenza
<p>Inceda abafundi ukuziqhelanisa nokubala kunye siphophe ukungaqondi kakuhle, Qala ngomsebenzi olula usebenzise amakhadi amanani. Qwalasela iseti yamakhadi enamanani ukusuka ku -1 ukuya kutsho kuma -180.</p> <p>Imizekelo Bonisa ngomzekelo owazisa isihloko (umz.“Cela abafundi babale amaso kwintsimbi yomqala kwincwadi zabafundi”).</p> <p>Bonisa i khadi lamanani, uthi “118”.Cela abafundi babale ukuya phambili ngo -1 ukusuka kuma “118” ukuya kutsho ku ama “125”. Kwakhona bayeke babale bebuya umva ukusuka kuma “125”ukuya kutsho kuma “118”.</p> <p>Bethelela indlela yokubiza amanani ukuze uncede</p>	<p>Izinto zokubala</p> <p>Amakhadi.</p> <p>Nantoni na enokuthi incede yokubala xa abafundi bebala ukwazisa isifundo.</p>
Indlela yokwenza imiyalelo	Amagama amatsha
<p>Ingxoxo: Qala uthethe nabafundi ngoku kubaluleka kwamanani kunye nokubala ebomini. Bakhuthaze bahlulelane ngemizekelo yamava abo apho kufuneka bebalile besebenzise izinto zokubala okanye baqwalasele amanani abangqongileyo.</p> <p>Babuze: Ingaba kanene sibale kanjani kulo msebenzi ugqithileyo? (umz.,ndibale ama apile asengxoweni ukusukela ku -1 ukuya kuma -12.)</p> <p>Uwabone ndawoni amanani ngokuya ubusiya esikolweni? (umz., Ndiwabone amanani ebodini kwindlela ye bhasi okanye kwi nombolo yendlu.)</p> <p>Ingabe uqaphele na umgama wezalathiso zebhodi okanye izalathiso zendlela ezibonisa ukuphala kwesantya endleleni? Xoxa indlela ezi zalathiso ziboniswa ngamanani ngayo (umz., “60 km/h” okanye “3 km ukuya esikolweni).</p> <p>Zeziphi izilwanyana ozibonileyo xa ubusiya esikolweni,bezingaphi xa bezizonke? (umz., “Ndibone izinja eziyi - 5 kunye nee nkomo ezi- 2.”)</p> <p>Amacebo okufundisa: Ukusebenza ngababini: Kuthaza abafundi basebenze ngababini xa besebenzisa izinto zokubala.Oku khuthaza intsebenziswano , ibancede kufundwe omnye komnye, ibangcine bexakekile.</p>	<p>lipatheni: Amanani alungisiweyo naphindiweyo,iimilo kunye nemibala</p> <p>Ngaphezulu: Xa ubuninzi okanye inani elikhulu okanye elikhulwana kunenani lesibini</p>

<p>Ukuphinda phinda kunye nokubethelela: Ukuphinda phinda kokuziqhelanisa ubala usiya phambili kunye nokubala ukubuya umva kunceda ekubetheleleni inani kunye nokubiza amanani ngendlela eyiyo. Bandakanya umsebenzi wokubala ibe yinto yemihla ngemihla</p>	
<p>limpendulo kwiincwadi zemisebenzi</p>	<p>Ukuziqhelanisa nokuzimela nesiphelo</p>
<p>Umsebenzi Iphepha 5</p> <ol style="list-style-type: none"> 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. 79; 78; 77; 76; 75; 74; 73; 72 5. 47; 48; 49; 50; 51; 52; 53; 54 	<p>Ukuziqhelanisa nokubala emethini: Sebenza nabafundi e mathini, bala ubheka phambili kunye nokubala ubuya umva ngoo -1 sebenzisabenzisa izinto zokubala. Bayeke baziqhelanise nokubala bekhwaza besenza umahluko wamanani aku-1 ngaphezulu okanye u-1 ngaphantsi kune nani olinikiweyo.</p> <p>Ukubala ngomlomo: Cela abafundi babale ngokukhwaza bebala bebheka phambili okanye babale bebuya umva ukusuka kwini abalinikiweyo ukubethelela ukulandelelana kwamanani nendlela abizwa ngayo.</p> <p>Umahluko:</p> <p>Umsebenzi o phambili: Bongezele umsebenzi ongu mceli-mngeni abafundi abaphambili. Njengo kubala ngoo -2 kunye nokubala ngo -5.</p> <p>Ibhokisi engumngeni: Yenza ibhokisi engumngeni yemisebenzi eyongezelelweyo. Bavuze abafundi abawugqibileyo kakuhle umsebenzi, ukhulise indlela ebanzi yokucinga.</p> <p>Isiphelo</p> <p>Ukucinga kunye neempendulo:</p> <p>Iqela leengcinga: Emva komlinganiselo wokuhlola, dibanisa abafundi baxoxe ngamava abo. Buza imibuzo enjengale, "Yintoni into oyifumene ilula okanye inzima ngokubala namhlanje?" kunye "Ikuncede ngantoni into yokubala ngendlela ezahlukeneyo?"</p> <p>limpendulo kunye nezilungiso: Yazisa nokuba kokuphi na ukungaqondi kakuhle uqwalisele ngelixa besenza umsebenzi wokubala, ikakhulu ngomba wokucacisa malunga ne digiti ezintathu zamnani.</p>

Izibalo zokudibanisa nokuthabatha

Intshayelelo	Izinto zokusebenza
<p>Sebenzisa umgca amanani ofumaneka encwadini yabafundi ukunceda abafundi ukuba babale ngo -2,3,kunye no-4.</p> <p>Cacisa nje ngokuba ububala ngo -1, ngoku baza kutsiba amanani ngoko lwandelelwano ababala ngalo (umz., tsiba inani lesibini qho xa ubala ngo -2).</p> <p>Umzekelo:</p> <p>Ukubala amaso kwintsimbi yomqala:</p> <p>Buza abafundi bajonge kwintsimbi yomqala ezotywiweyo kwincwadi yabafundi, enamaso alungiselanisiweyo emgcezi. Babalise amaso ngo-2</p> <p>(umz. "2, 4, 6, 8, 10..."), baze babale ngo - 3 (umz., "3, 6, 9, 12..."), ekugqibeleni baze babale ngo - 4 (umz., "4, 8, 12, 16...").</p> <p>Khuthaza abafundi basebenzise umgca manani ezincwadini zabo babenombono wokutsiba abakwenzayo xa bebala ngo - 2, -3, kunye no- 4.</p>	<p>Izinto zokubala</p> <p>nantoni na enokuthi incede yokubala xa abafundi bebala ukwazisa isifundo</p>
Indlela yokwenza imiyalelo	Amagama amatsha
<p>Yazisa ukubala ngamaqela:</p> <p>Chazela abafundi ukuba kubalwa njani na emaqeleni zo- 2, 3, kunye no 4.</p> <p>Yazisa ingcamango zamaqabane (umz., amaqabane zo- 2 ngu 2, 4, 6, 8, 10...).</p> <p>Umsebenzi wokubala egumbini:</p> <p>Khokela abafundi ubale ukhwaza ngo- 2, 3, kunye no 4.</p> <p>Nqumama ngamaxesho athile uze ubuze umfundi ngamnye abize inani elilandelayo ngendlela yokulandelelana kwamanani, inceda abafundi ekubetheleleni ingcamango.</p> <p>Amacebo okufundisa:</p> <p>Khuthaza abafundi basebenze ngababini babale ngezinto okanye ngezinto zokubala emaqeleni zo- 2, 3, kunye no 4.</p> <p>Benze bathelekise iziphumo baze baxoxe ngeyiphindlela (ngo- 2, 3, okanye no 4) ekhawulezayo ngoba.</p> <p>Oku kukhulisa indlela yokulandela iiphatheni kunye nokubala ngokukhawuleza.</p>	<p>Ezongezelelweyo: Yazisa kule kota uchaze iingcamango zokubala emaqeleni (umz., 2, 3, 5).</p> <p>Umgca manani: Umbono wezinto zokubala ezinceda abafundi babone indlela yokulandelelana kwamanani kunye neephatheni xabebala ngexesha lokuphumla.</p>

Iimpendulo kwiincwadi zemisebenzi	Ukuziqhelanisa nokuzimela nesiphelo
<p>Umsebenzi</p> <p style="text-align: right;">Iphepha 8</p> <p>1. a. 2; 4; 6; 8; 10; 12; 14; 16; 18 b. 26; 24; 22; 20; 18; 16; 14; 12; 10 c. 22; 24; 26; 28; 30; 32; 34; 36; 38 d. 76; 74; 72; 70; 68; 66; 64; 62; 60 e. 44; 46; 48; 50; 52; 54; 56; 58</p> <p>2. a. 1; 4; 7; 10; 13; 16; 19; 22; 25 b. 22; 19; 16; 13; 10; 7; 4; 1 c. 18; 21; 24; 27; 30; 33; 36; 39 d. 65; 62; 59; 56; 53; 50; 47; 44 e. 14; 17; 20; 23; 26; 29; 32; 35</p> <p>3. a. 2; 6; 10; 14; 18; 22; 26; 30; 34</p>	<p>Ukuziqhelanisa nokuzimela:</p> <p>Ukuziqhelanisa nokubala emethini: Sebenza nabafundi emethini, bala ubheka phambili kunye nokubala ubuya umva ngo-2, 3, kunye no 4 sebenzisa izinto zokubala.</p> <p>Enza umsebenzi owahlukileyo ngomngangatho ukubethelela ulandelelwano (umz., ukubala ngo 3 ukusuka ku 3 ukuya kutsho ku 30 nokubuya umva).</p> <p>Ukutholekisa amanani: Khuthaza abafundi kwimisebenzi enxulumene nokutholekisa amanani (umz., “Ndinenani elingu- 4. Ngubani ophezu ngo- 2 ku- 4? Ngubani ongaphantsi ngo- 2 kuno- 4?”).</p> <p>Oku kuyabanceda baqonde ukunyuka kunye nokwehla phakathi kolandelelwano.</p> <p>Ukubala ngomlomo: Cela abafundi babale ngokukhwaza, bebala bebheka phambili okanye babale bebuya umva, ukusuka kwini abalinikiweyo ngo- 2, 3, kunye no 4 ukwakha ukuzithemba kunye nokuqhabalaka.</p> <p>Umahluko:</p> <p>Abafundi abahambele phambili: Abo babamba ingcamango ngokukhawuleza, banike umsebenzi owongezelekileyo wokubala ozakuba nomgeni ofanayo nalowo wabo sebegqibile.</p> <p>Yakha ibhokisi engumngeni yemisebenzi eyongezelelweyo ibandakanya 1-3 izibalo ezingaphezulu zabo bagqiba kuqala.</p> <p>Bavuze abafundi abawugqibileyo kakuhle umsebenzi, ukhulise indlela ebanzi yokucinga.</p> <p>Isiphelo Qiniseka abafundi baziqhelanise ngokubala ngo 1 kunye no 2, 3, kunye no 4 ibe ngumsebenzi wasekhaya.</p> <p>Ukuziqhelanisa rhoqo ibanceda baze baziqhele iipatheni, baqonde ulandelelwano, kuze bazimisele ukubala usiya phambili kunye nokubuya umva.</p>

Izibalo zokudibanisa nokuthabatha

Umxholo:

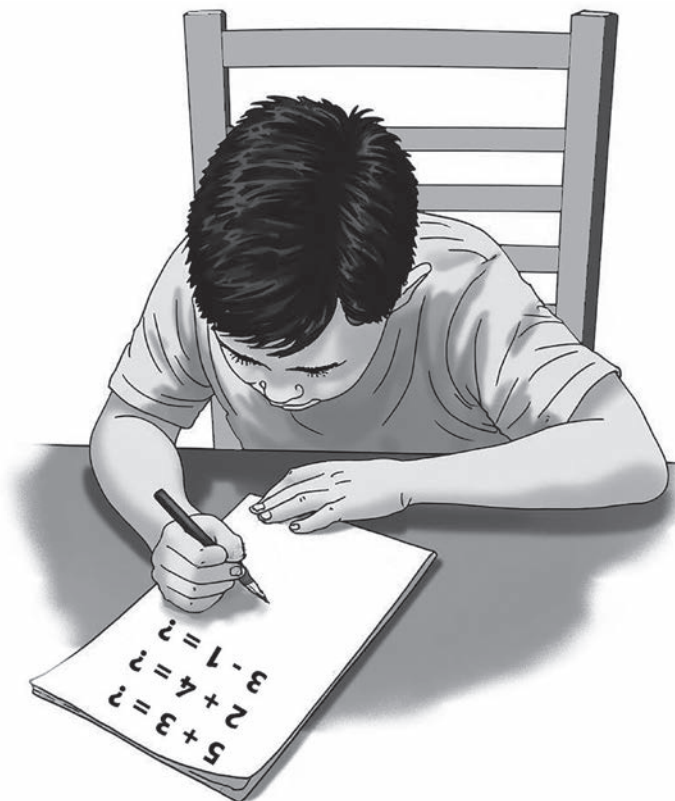
Intshayelelo	Izinto zokusebenza
<p>Ukubala kusinceda kwizinto ezininzi ebomini bethu.</p> <p>Gxininisa ukubabonisa ukubala ngendlela ezahlukileyo njengo 2, 3, kunye no 5, kusinceda sibone ipateni kunye nokwenza sibale ngokukhawuleza.</p> <p>Umzekelo: Buza abafundi babale izinto egumbini, ezinjenge desika okanye ipowusta, ngendlela eyahlukileyo xa uphumla(umz., 2, 3, 5).</p> <p>Umzekelo, bala inani leedesika ngo-2 ngokukhawuleza uzokufumana amanqaku.</p> <p>Yazisa ukungaqondi kakhuhle ngokucacisa ukubala ngamaqabane kusinceda sifake izinto emaqeleni, ezithi zohluka ekubaleni izinto nganye.</p>	<p>Zinto zokubala</p>
Indlela yokwenza imiyalelo	Amagama amatsha
<p>Indlela yokwenza imiyalelo:</p> <p>Ukuziqhelanisa nokubala emethini: Sebenza nabafundi e mathini, bala ubheka phambili kunye nokubala ubuya umva ngo-5, 10, kunye no- 100. Sebenzisa izinto zokubala okanye izinto eziphathekayo ukunceda babambe ngexesha lokuphumla (ukubala ngamaqabane).</p> <p>Sisebenza ngokubala: Phatha incwadi ezifanelekileyo kuluhlu, qala ekubaleni ngo-5, 10, kunye no- 100. Qinisekisa abafundi bayaziqhelanisa ngokubala besiya phambili kunye nobuya umva.</p> <p>Ukutholekisa amanani: Sebenza nabafundi ekutholekiseni amanani ango- 5 okanye 10 ngaphezulu kunye no- 5 okanye 10 ngaphantsi kunenani alinikiweyo. Umzekelo, ukuba inani ngama 20, fakela iyakuba ngubani 5 ngaphezulu okanye 10 ngaphantsi.</p> <p>Ukubala ngomlomo: Enza abafundi babalele ngaphkunyeye ngo-5 kunye no-10 ukusuka kwinqanaba alinikiweyo. Khuthaza abafundi baziqhelanise ngokubala besiya phambili kunye nobuya umva.</p>	<p>Amaqela: Xoxani ningazifaka njani izinto emaqeleni zibe kwiseti ukwenzela nikwazi ukubala ngokukhawuleza nalula.</p> <p>Zinto zokubala: Sebenzisa izinto zokubala eziphathekayo okanye izinto ukubonisa ukubala ngexesha lokuphumla.</p>

<p>Gqibezela iphepha lomsebenzi: Bonelela ngephepha lomsebenzi elinemizekelo efanayo nalowo ukuziqhelanisa egumbini (umz., ukubala ngo- 5 kunye no-10). Yeka abafundi bagqibezele ngabanye okanye ngababini.</p> <p>Amacebo okufundisa: Khuthaza abafundi basebenze ngababini ngokubala izinto okanye babale ngamaqela anga- 5 ukuze bathelekise iziphumo zabo.</p> <p>Xoxa kunjani ukubala ngo- 5 okanye ngo- 10 kungalula kukhawuleze kunokubala ngo- 1 uze uphonononge ukuba kutheni kulumba.</p>	
<p>Iimpindulo kwiincwadi zemisebenzi</p>	
<p>Iimpindulo kwincwadi zemisebenzi</p>	<p>Iphepha 10</p>
<p>Umsebenzi:</p> <p>1. a. 0; 5; 10; 15; 20; 25; 30; 35 b. 50; 45; 40; 35; 30; 25; 20; 15</p> <p>2. a. 0; 10; 20; 30; 40; 50; 60; 70 b. 70; 60; 50; 40; 30; 20; 10</p> <p>3. a. 100; 200; 300; 400; 500 b. 500; 400; 300; 200; 100</p>	
<p>Ukuziqhelanisa nokuzimela nesiphelo</p> <p>Umsebenzi wamaqela: Mababale kunye egumbini besiya phambili kunye ngo-5 kunye no- 10 ukusuka kumanani awohlukeneyo phakathi ko- 1 ukuya kuma- 180.</p> <p>Phinda oku ka-6 ngexesha ukubethelela izakhono.</p> <p>Umahluko: Abafundi abahambele phambili: Abo babambha ingcamango ngokukhawuleza, banike umsebenzi owongezelekileyo wokubala ozakuba nomgeni ofanayo nalowo wabo sebegqibile.</p> <p>Abafundi abadinga ukuxhaswa: Nikezela ngoncedo kumfundi ngamnye edesikeni katiitshala uze ubawonge ngokuzama kwabo nokubakhuthaza baphucuke.</p> <p>Isiphelo: Ukuziqhelanisa amaxesha onke: Qiniseka ukuba abafundi bayazibandakanya kumsebenzi wasekhaya yonke imihla obandakanya ukubala ngo- 5, 10, kunye no- 100 ukubethelela izakhono zabo ukwakha ukuqhabalaka.</p> <p>Ukubethelela: Shwankathela izifundo ngokhangela ezona ngcamango zokubala usiya phambili kunye nokubuya umva ngamaqabane awohlukileyo, ukuthelekisa amanani, kunye nokubaluleka ukuqaphela iphatheni.</p> <p>Ukukhuthaza: Qaqambisa inqubela eyenziwa zizakhono zokubala uze ukhuthaze ukuziqhelanisa oko egumbini kunye nasekhaya uqinisekise ngokuqonda kwabo.</p>	

Uzalano phakathi kodibaniso nothabatho

Intshayelelo	Izinto zokusebenza
<p>Cacisa ukuba udibanisa kunye nothabatha basanceda ekuqondeni ukuba mangaphi amanani atshintshayo, afana njani nokubala ngo- 10, 5, 2 namanye amaxesha okuphumla asanceda sibone amanani ephatheni.</p> <p>Ezi opareyishini zifana nezihlobo kwizibalo, zisebenza kunye asibonisa ukuba ingaba amanani abheka phambili okanye abuya umva.</p> <p>Umzekelo:</p> <p>Bonisa uqhakamishelwano:</p> <p>$45 + 5 = 50$ (dibanisa ngo- 5)</p> <p>$50 - 5 = 45$ (thabatha ngo- 5)</p> <p>Bonisa ukubala kunye nolandelelwano lwamanani ku-10 kunye no- 5 ukubethelela ulwalamano kunye nokuziqhelanisa ukubala usiya phambili kunye nokubuya umva</p>	<p>Ibhodi encinci elimhlophe</p> <p>Iphepha elincinci</p>
Indlela yokwenza imiyalelo	Amagama amatsha
<p>Indlela yokwenza imiyalelo:</p> <p>Umsebenzi wasemethini: Sebenza ngqo nabafundi ufumane umngeni wobudlelwane be opareyishini. Sebenzisa imethi ukuqwalasela ukuziqhelanisa.</p> <p>Iwekshiti nokuziqhelanisa: Nika abafundi amaphepha omsebenzi anemizekelo wobudlelwane be opareyishini (ukudibanisa kunye nokuthabatha). Xhasa abafundi abawugqibileyo umsebenzi yale mizekelo.</p> <p>Inkqubo yokujonga abafundi: Bhala inkqubo yabafundi uze uqwalasele abo bafuna ukongezelelwa uncedo. Yenza isicwangciso seseshoni yongenelelo ukuba siyafuneka.</p> <p>Amacebo okufundisa: Umsebenzi wababini: Yahlula abafundi babe ngababini. Umfundi ngamnye makabhale ongeze ingxaki efana naleyo ibiboniswe kwintshayelelo.</p> <p>Ke ngoku mabatshintshe iphepha lomsebenzi nabahlobo babo basombulule ubudlelwane be opareyishini (thabatha).</p> <p>Lo msebenzi ubethelela ulwalamano phakathi ko dibanisa kunye no thabatha.</p>	<p>Ubudlelwane: lisisicwangciso sokuqonda umahluko Phakathi koku-Dibanisa kunye noku-Thabatha</p> <p>Ncinci: Lixabiso elingaphantsi kwelinye ixabiso.</p> <p>Ngaphezulu: Lixabiso elikhulu kunelinye ixabiso.</p>

Iimpendulo kwiincwadi zemisebenzi		Ukuziqhelanisa nokuzimela nesiphelo
Umsebenzi Iphepha 11		<p>Umsebenzi wamaqela: Abafundi mababale kunye ukuya phambili babuye umva ngo- 5kunye no 10 ukusuka nakwa waphi amaqabane alamanani akolu luhlu ka 1 ukuya kuma-180.</p> <p>Phinda oku ka-6 ngexesha ukubethelela izakhono uze ubethelela ulolwamano phakathi ko dibanisa kunye no thabatha.</p> <p>Umahluko: Abafundi abahambele phambili: Abo babamba ingcamango ngokukhawuleza, banike umsebenzi owongezelekileyo wokubala ozakuba nomgeni ofanayo nalowo wabo sebegqibile.</p> <p>Abafundi abadinga ukuxhaswa: Nikezela ngoncedo kumfundi ngamnye edesikeni katiitshala uze ubawonge ngokuzama kwabo nokubakhuthaza baphucuke.</p>
Imphawu	Uguqulelo lophawu	
$5 + 1 = 6$	$6 - 1 = 5$	
$8 + 2 = 10$	$10 - 2 = 8$	
$10 - 3 = 7$	$3 + 7 = 10$	
$25 + 30 = 55$	$55 - 30 = 25$	
$87 + 13 = 100$	$100 - 87 = 13$	
$195 - 60 = 135$	$135 + 60 = 195$	
		<p>Isiphelo: Bethelela ukubaluleka ngokuziqhelisa qho ngokubala ngenjlobo ngexesha lokuphumla kunye nokusebenzisa ubudlelwana be opareyishini.</p> <p>Khuthaza abafundi ukongeza izakhono yonke imihla kwincwadi zabo zemisebenzi ukuqinisa ukuqonda kunye nokuphucula ukuqhabalaka.</p>



Chaza, thelekisa ulandelelanise

Intshayelelo	Izinto zokusebenza									
<p>Bhala amanani njee ebhodini ngolandelelwano: ngaphezulu umzekelo: 45, 12, 78, 34, 89, 23, 67, 56.</p> <table border="1" style="margin-left: 20px;"> <tr> <td>37</td> <td>76</td> <td>20</td> </tr> <tr> <td>56</td> <td>17</td> <td>75 90</td> </tr> <tr> <td>51</td> <td>85</td> <td>22</td> </tr> </table> <p>Cacisa ukuba amanani njee ngokulandelelana awakubeki zingqondweni. Buza, "Leliphi inani elincinci?" kunye "Leliphi elikhulu?"</p> <p>Kwakhona buza abafundi bakuncede ulungise amanani ukusuka kwelincinci ukuya kwelikhulu babone ukuba uwahlela njani manani wenzele bona bazokuqonda ngakumbi.</p> <p>Umzekelo: Dwelisa amanani: 17, 20, 22, 37, 51, 56, 75, 76, 85, 90.</p> <p>Bhala "ukunyuka ngokulandelelana" kunye "ukwehla ngokulandelelana" ebhodini.</p> <p>Xoxa nabafundi ukuba athetha ukuthini la magama. Qinisekisa bayaqonda ukuba ukunyuka kuthetha ukuqala kwencinci ukuya kwenkulu kunye nokwehla kuthetha ukuqala kwenkulu ukuya kwencinci.</p>	37	76	20	56	17	75 90	51	85	22	<p>Itshati yamanani Umgca manani</p>
37	76	20								
56	17	75 90								
51	85	22								
Indlela yokwenza imiyalelo	Amagama amatsha									
<p>Indlela yokwenza imiyalelo: Yazisa ukungaqondi kakhuhle: Ukuxwesisa "Ukunyuka" kunye "Nokwehla": Abafundi bangawaxuba lamagama.</p> <p>Ukuncipha: Sebenzisa izinto ezibonakalayo njenga matolo okukhomba (uphezulu ngowokunyuka ukunyuka, uzantsi ngowokuhlala) ufundise ukulandelisa amagama.</p> <p>Ukutsiba amanani xa ubala ngamaqela: Abafundi bangatsiba okanye bongeze amanani.</p> <p>Ukuncipha: Bonelela ngemigca manani uze usebenzise izinto zokubala ezibonakalayo zokubala amaqabane (umz. 2, 5, 10). Ziqhelanise ukubala ngaphandle.</p> <p>Ukuqonda "mkhulu kuno" kunye "mncinci kuno": Abafundi bangafumana ubunzima ngezi ngcamango.</p>	<p>ukunyuka ngokulandelelana: Lungisa lamanani ngobuncinci ukuya kubukhulu</p> <p>ukwehla ngokulandelelana: Lungisa lamanani ngobukhulu ukuya obuncinci</p>									

Ukuncipha:

Sebenzisa umgca manani kunye nezinto eziphathekayo ukubonisa intshukumo ngasekunene ngo "mkhulu kuno" kunye ngasekhohlo ngo "mncinci kuno".

Cacisa ukungaqondi kakuhle:

Ukunyuka ngokulandelelana: Bhala amanani ebhodini nganye nganye, bandakanya abafundi bachonge inani elikunyeelayo.

Ukwehla ngokulandelelana: Hlela amanani afanayo ukusuka kwelikhulu ukuya kwelincinci, ubethelala ingcamango zo "bheka ezantsi" kwixabiso.

Uksebenzisabenzisa amaqabane: Cacise ubala njani ngamaqabane (2, 5, 10). Qala kwinani, uthi 10, uze ubala uyokutsho phezu koli-10(10, 20, 30...). Phinda uze wehle (50, 40, 30...).

Iingxaki eziqhelekileyo: Yolatha uze utsibe amanani okanye wongeze ngaphezulu ucazulula iphatheni. Sebenzisa umgca manani ukubonisa indlela efanelekileyo yokunyelelwano.

Sebenzisa amabinzana njengo, "Ukuba u-ama- 23 ungaphantsi kuna 45, ngubani u-ama- 45 ngaphezulu kuno?" Izinto eziphathekayo zinganceda abafundi ukubona olu luhlaliso kumgca manani.

Ukuziqhelanisa kunye:

Abafundi mababale bekwaza ngamaqabane ka 2, 5, okanye 10 ukusuka kwizibalo ezahlukeneyo. Khangela ulwazi uze ubalungise iziphoso ngokukhawuleza.

Amacebo okufundisa:

Khuthaza abafundi basebenzise umgca manani okanye izinto ezibonakalayo ukulandelelisa amanani.

Abafundi abazibambayo iingcamango ngokukhawuleza, Yazisa ubunzima apho banokuwu chonga khona "I mkhulu kune" okanye "I mncinci kune" amanani owanikiweyo kwiiseti zazo.

Gxininisa ulwalamano phakathi kwamanani kunye nokubaluleka kokuqonda amagama afana no "mkhulu kune" kunye " mncinci kune " kunye ukwenyuka nokwehla kwimixholo.

limpendulo kwiincwadi zemisebenzi	Ukuziqhelanisa nokuzimela nesiphelo
<p>Umsebenzi wokuhlola Iphepha 13</p> <p>1. a. 173; 174; 175; 176; 177; 178; 179; 180 (Bala usiya phambili ngo- 1) b. 10; 12; 14; 16; 18; 20; 22; 24; 26 (Bala usiya phambili ngo- 2) c. 56; 59; 62; 65; 68; 71; 74; 77 (Bala usiya phambili ngo- 3) d. 10; 14; 18; 22; 26; 30; 34; 38 (Bala usiya phambili ngo- 4)</p>	<p>Umsebenzi owongeziweyo</p> <p>Hlaziya intshayelelo: Emva kokuxoxa ngengcamango yokwehla kunye nokunyuka kolandelelwano, cela abafundi babize amanani nokuba leliphi. Abalungele uksebenzisabenza ukulandelelisa amanani ngokwenyuka okanye ngokwehla ngolandelelwano bengamaqela.</p>
<p>Umsebenzi Iphepha 14</p> <p>a. 190; 192; 194; 196; 198; 200 b. 198; 195; 192; 189; 186; 183 c. 179; 175; 171; 167; 163 d. 175; 180; 185; 190; 195; 200 e. 150; 160; 170; 180; 190; 200</p>	
<p>Umsebenzi Iphepha 15</p> <p>1. a. $150 + 30 = 180$ b. $180 + 20 = 200$ 2. Izibalo zikathabatha: a. $200 - 75 = 125$ b. $200 - 120 = 80$ 3. Izibalo zophinda-phindo: a. Phinda-phinda $45 = 90$ b. Phinda-phinda $60 = 120$</p>	

Umsebenzi wamaqela:

Inyathelo 1: Yahlula abafundi ngamaqela (ngababini). Bonelela iqela ngalinye (okanye ngababini) ngebhodi emhlophe encinci okanye amaphepha amancinci.

Inyathelo 2: Umfundi ngamnye makabhale iseti yamanani njee phakathi ko 0-200. Mababeke amanani ngamaqabane 2, 5, 10, 3, kunye no-4 ukubethelela ukubala ngezakhono.

Inyathelo 3: Abafundi bazakutshintshana ngebhodi ezimhlophe/amaphepha kunye nentanga zabo. lintanga zabo ngoko mazisebenze ngeseti abazinikiweyo zamanani ukunyuka ngokolandeelwano – ukusuka kwelincinci ukuya kwelikhulu.

Inyathelo 4: Phinda le nkqubo, kodwa ngelixesha, abafundi balandelelanisa amanani ngendlela yobukhulu (ukusuka kwenkulu ukuya kwencinci).

Ukubethelela kunye nokuphononga:

Khuthaza abafundi bajonge omnye komnye umsebenzi ukuqinisekisa ukuchana.

Hlaziya neyiphi na impazamo ninonke nize nixoxe kutheni lento ukulandelelanisa amanani kubalulekile nje.

Ukuziqhelanisa ngokuzimela: Abafundi abadinga olunye uncedo ngesi sihloko banga thunyelwa kulo.

Bethelela ukubala ngamaqabane kunye nolandeelwano lwamanani ukwenyuka okanye ukwehla – qinisekisa ukuba abafundi bayaziqhelanisa nemisebenzi yasekhaya yonke imihla.

Nikela umsebenzi ofanayo apho ukuziqhelanisa ukubala usiya phamibli kunye nokubuya umva ngo- 2, 3, 4, 5, 10, kunye ne- 100 ukusuka nakweliphi inani.

Bandakanya iingxaki ezifunwa ukuchongwa “mkhulu kune” kunye “mncinci kune” uze ulungise amanani kunye ukwenyuka nokwehla ngokunyeelwano.

Ukuziqhelanisa rhoqo kunceda ekuqiniseni ukuqonda kwabo kuze uphucule ukwazi amanani nezakhono zokunyeelwano. Bakhuthaze basebenzise izinto njengomgca manani kunye nezinto eziphathekayo ukuncedisana nokufunda kwabo.

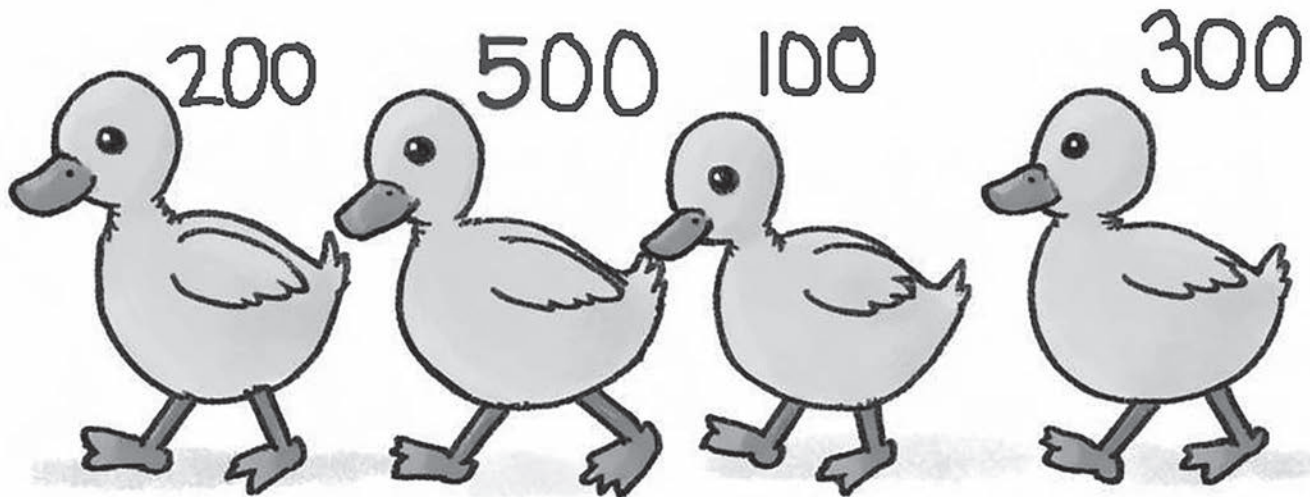
Ukubala izinto ngokuthembekileyo

Intshayelelo	Izinto zokusebenza
<p>Yazisa ingcamango zokubala ngokubalisa ibali lika Alo lokutya kwase gadini ukunceda abafundi baqonde ukusebenzisana ukubala ebomini bethu yonke imihla.</p> <p>Funda ibali lika Alo nomama wakhe beqokelela imifuno egadini yabo.</p> <p>Umzekelo “Ukuba ngaba uAlo nomama wakhe baqokelele iitumato ezi- 12 kunye netapile ezi- 6, mingaphi imifuno abayiqokeleleyo iyonke?” Bandakanya abafundi ngokubuzo imibuzo enxulumene nebali elibandakanya uqikelelo kunye nokubala. Umzekelo: “Ukubangaba baqokelele iitumato ezi-12, zingaphi ezishiyekileyo egadini?” “Ukuba bavune ezi- 8 ngaphezulu itapile, zingaphi abanazo zizonke?”</p> <p>Yandisa ibali ubkunyekanye apho uAlo efuna ukuqikelela inani lemifuno phambi kokuba awabale.</p> <p>Okubethelela nokuqikelela kubalulekile nokubala nokuqinisekisa inyani.</p>	<p>Izinto zokubala (umz., iimbotyi, iibhloko ezincinci, okanye amaqhosha)</p> <p>Itshati lamanani okanye umgca manani osisalathiso</p>
Indlela yokwenza imiyalelo	Amagama amatsha
<p>Emva kwentshayeleyo, qondisa abafundi ngokuziqhelanisa ukubala izinto zokubala uze uqikelele ubungakanani. Uqwalaselo sebenzisa kubaleni ngokuthembekileyo ukuya kutsho ku-190, bakhuthaze emaqeleni ukubala ngokugxininisa.</p> <p>Umsebenzi wamaqela: Yahlula abafundi babe ngamaqela amancinci.</p> <p>Umsebenzi wokubala: Bonelela iqela ngalinye nge seti yezinto zokubala okanye izinto ezimbalana ezilapha egumbini (umz. ipensile, iibhloko, iirubha).</p> <p>Qikelela kuqala: Buza iqela ngalinye liqikelele inani lezinto elinzo.</p> <p>Ukubala kunye nokuhlola: Emva koqikelela, yiba neqela lokubala izinto nokuhlola ngokuchanekileyo uqikelelo lwabo.</p>	<p>Ukubala: Umthetho wokucacisa ubungakanani okanye iziphumo lenani zezinto zokubala kwiseti okanye kwiqela.</p> <p>Qikelela: Ukwenza ubalo ngokurhixiza okanye ufundise ngoqikelelo ngobungakanani okanye iziphumo zenani.</p> <p>Ngokuthembekileyo: Ukubala ngokuchanekileyo kunye nokuhambelana</p>

Ukubala izinto ngokuthembekileyo

Intshayelelo	
<p>Qala ngokugxininisa ukubaluleka kokuqonda kunye kochana amanani esimboli kunye namagama. Cacisa ukuba ezizakhono azibalulekanga kwizibalo qha kodwa nasebombini yemihla ngemihla. Qaqambisa ukufunda nokubhala amanani kakuhle kunceda ekuthetheni nokuqonda ubungakanani nemilinganiselo.</p>	
Indlela yokwenza imiyalelo	Amagama amatsha
<p>Qala ubhale umvo ebhodoni, uze ucele umfundi abhale igama lenanani. Yongeza umvo omnye ukwenza imivo emibini kwakhona yongeza omnye ukwenza imivo emithathu yamanani cela umfundi abhale amagama amanani.</p> <p>Uksebenzisabenzisa amakhadi exabiso lendawo: Bonisa amanani sebenzisabenzise amakhadi exabiso lendawo ukunceda abafundi babone amanani akhiwa njani na.</p> <p>Ukuziqhelanisa kunye nokubethelela: Bonelela ngokuziqhelanisa ngamathuba ngokuhlisa inani ukhwela kumagama ukuya kwisimboli okanye enye kwenye. Sebenzisa imisebenzi yamanani ukudibanisa u-akukho nto kulishumi okanye kwikhulu.</p> <p>Ukwazisa ukungaqondi kakuhle ukuqinisekisa abafundi bayazifezekisa iinjongo: Abafundi ababidekileyo ngamagama esimboli okanye amagama amanani.</p> <p>Ukunciphisa: Sebenzisa itshati lamanani kunye namakhadi ukubethelela ukungaqondi nokubiza.</p> <p>Ziqhelanise ukubhala amanani ngegama kunye nenani rhoqo.</p> <p>Bonelela abafundi ngokucacisa, chonga baze bafunde amanani.</p> <p>Indlela yokumela amanani: Abafundi bangabanengxaki ukuqonda ixabiso lendawo okanye ukubhala amanani ngendlela engeyiyo, njengo 3004 endaweni ka 304.</p> <p>Ukunciphisa: Sebenzisa ixabiso lendawo njengesiseko lika lishumi ukuba nombono, ukuba umvo umele ikhulu, amashumi okanye imivo.</p> <p>Bonelela inyawo ngenyawo umzekelo ukuziqhelanisa ukujika amagama kunye nesimboli.</p> <p>Khuthaza abafundi ukuthetha ngexabiso lendawo ngelixa bebhala amanani</p>	<p>Amagama amanani: Ligama le nani (umz., "ngamakhulu mathathu anesine").</p> <p>Ixabiso lendawo: indawo yenani kulapho inani lihlala khona</p>

Iimpendulo kwiincwadi zemisebenzi	Ukuziqhelanisa nokuzimela nesiphelo
<p>Umsebenzi Iphepha 20</p> <p>1. 198- Ikhulu namashumi alithoba nesibhozo 158- Ikhulu namashumi anesihlanu anesithandathu 250- Amakhulu amabini anamashumi amahlanu 179-Ikhulu linamashumi asixhenxe anesithoba 220-Amakhulu amabini anamashumi amabini</p> <p>2. a. 232 b. 412 c. 199</p> <p>3. a. Ngamakhulu amabini aneshumi elinesine b. Ngamakhulu amabini anamashumi amane anesithoba c. Ngamakhulu amabini anamashumi amathathu anesibhozo d. Likhulu elinamashumi amabini anesihlanu</p>	<p>Hlaziya: Gqibezela isifundo sokubonakalisa kufundwa njani nokubhala ngokufanelekileyo.</p> <p>Bethelela ukubaluleka ngokucacisa inani ukuqinisekisa ukumela isimboli elifanelekileyo.</p> <p>Khumbuza abafundi ukufunda nokubhala amanani emakhaya besebenzisa amagama amanani ukubethelela ukuqonda nezakhono.</p>



Ukuthelakisa amanani

Intshayelelo	Izinto zokusebenza
<p>Ingcamango: Abafundi mabaqonde ukusetyenziswa kwesimboli (<, >, =) ukwenzela amanani ukuya ku- 80 ukuya kutsho kuma- 99.</p> <p>Ukubalisa ibali: Funda ibali Lika Nkz. Lila uthelekise ama-apile ne-orenji abanazo.</p> <p>Cacisa uNkz. Lila asebenzise isimboli okubonisa inani elikhulu okanye elincinci.</p> <p>Ukusebenzisa isimboli ka mkhulu kuno (>) ifana nomlomo wengwenya efuna ukutya inani elikhulu.</p> <p>Umzekelo: Thelekisa amanani amabini sebenzisabenzisa isimboli.</p> <p>Umzekelo 1: 33 > 32 Umzekelo 2: 78 > 66</p> <p>Into ebonakalayo: bonisa isimboli yengwenya ebhodini ubonise ukuba ijonge kwicala elikhulu lenani.</p>	<p>Amakhkunyei amanani: Ukuthelakisa into ebonakalayo nokuziqhelanisa</p>
Indlela yokwenza imiyalelo	Amagama amatsha
<p>Bhala imizekelo ebhodini, njengo 45 < 50 kunye 72 > 68. Sebenzisa ezi simboli < okanye > ukubonakalisa uthelekiso lwanani.</p> <p>Ukwazisa ngokungaqondi kakuhle: Abafundi bangagqwetha isimboli > kunye < okanye bangazisebenzisi ngendlela elungileyo.</p> <p>Ukunciphisa: Sebenzisa isifaniso sengwenya apho umlomo wengwenya (>) isokolo ijonge kwicala elinenani elikhulu kuba "ifuna" ukulitya.</p> <p>Ukukunyelelanisa amagama: Abafundi bangafumana ubunzima ukukunyelelanisa amagama ngendlela ukusuka kwencinci ukuya kwenkulu kunye nokubuyela.</p> <p>Ukunciphisa: Qala ngamanani amancinci uze wongeze amakhulu kancinci kancinci nje abafundi bezithemba.</p> <p>Ukuthelakisa iziqokelelo: Abafundi bangathelakisa iziqokelelo ngokujongeka kwazo hayi ubungakanani.</p> <p>Ukunciphisa: Gxininisa ukubala inqokelelo nganye ukuze uthelekise ngobuchule. Sebenzisabenzisa izinto eziphathekayo uze uqhelanise ukuwenza amaqela uwabale ukuqinisekisa abafundi bayayiqonda ingcamango yobungakanani na.</p>	<p>Mkhulu kuno (>): Inani elisekhohlo kwicala lesimboli > likhulu kunenani elingase kunene.</p> <p>Ngaphantsi kuno (<): Inani elisekunene kwicala lesimboli < lincinci kunenani elingasekhohlo.</p>

Iimpendulo kwiincwadi zemisebenzi	Ukuziqhelanisa nokuzimela nesiphelo
<p>Umsebenzi wokuhlola:</p> <p>Iphepha 21</p> <ol style="list-style-type: none"> 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. $200 - 74 > 96 + 6 + 24$ 	<p>Hlaziya: Bethelala uksebenzisabenzisa ukuthelekisa iisimboli kunye nesifaniso somlomo wengwenya ukuqinisekisa ukuba abafundi bayaqonda ukuba isimboli isebenza njani na.</p> <p>Umsebenzi wasekhaya: Yabela umsebenzi apho abafundi bazakuthelekisa kunye nolandelelaniso lwamanani amanani kunye noqikelelo emakhaya.</p>

Ixabiso lendawo elimi kuyo inani

Intshayelelo

Qala ngokucacisa ingcamango lexabiso lendawo kunye nexabiso. Ixabiso lendawo libhekisa kwisikhundla sendawo senanini (umz., amashumi okanye onye/imivo), ngelixa ixabiso libhekisa nakweliphi na inanani xa licalucaliwe.

Gxininisa ukuqonda kwabafundi ngexabiso lendawo libonisa isikhundla, kunye nexabiso libonisa ukuba linexabiso kangakanani na elonani.

Umzekelo:

Bhala inani ama- 56 ebhodini. Cacisa:

Ixabiso lendawo: u- 5 ukwisikhundla samashumi.

Ixabiso: u-5 umela ama- 50 (5 yamashumi), uze u-6 umele u- 6 (imivo).

Sebenzisa omnye umzekelo:

Inani elingu- 34, u- 3 kwisikhundla samashumi (ixabiso lika- 30) aze u- 4 ukwindawo yemivo (ixabiso lika 4).

Indlela yokwenza imiyalelo

Bhala ingcaciso lexabiso lendawo kunye nexabiso ebhodini:
 Ixabiso lendawo: isikhundla somvo enanini.
 Ixabiso: Bubungakanani bomvo ngamnye xa ecazululiwe.
 Bonelela imizekelo:
 Ebhodini, bhala imizekelo phantsi kwezi ntloko:
 Ixabiso lendawo: 78 – amashumi
 Ixabiso: 78 – 70 kunye 8
 Ukwazisa ngokungaqondi kakuhle:
 Ukudideka lixabiso lendawo kunye nexabiso:
 Abafundi bangadideka lixabiso lendawo kunye nexabiso lemivo.
 Ukunciphisa:
 Bethlela ukuba ixabiso lendawo libhekisa kwisikhundla senani (amashumi okanye imivo), ngelixa ixabiso libhekisa kubungakanani olupheleleyo lwemivo enanini.
 Sebenzisa izinto ezibonakalayo namakhadi exabiso lendawo ukucacisa umahluko.
 Ixabiso lokubala impazamo:
 Indlela engeyiyo yokubala ixabiso kumvo ngamnye.
 Bonelela ukukhokela ngamanyathelo ukuba libalwa njani ixabiso kumvo ngamnye.
 Sebenzisa umbono ukujonga ukuqonda komfundi nokongeza iingxaki zokuziqhelanisa.
 Ixabiso lokubala impazamo:
 Indlela engeyiyo yokubala ixabiso kumvo ngamnye.
 Ukunciphisa:
 Bonelela ukukhokela ngamanyathelo ukuba libalwa njani ixabiso kumvo ngamnye.
 Sebenzisa umbono ukujonga ukuqonda komfundi nokongeza iingxaki zokuziqhelanisa.
 Iimpindulo kwiincwadi zemisebenzi.

Amagama amatsha

Ixabiso lendawo: indawo yenani kulapho inani lihlala khona. (umz., amashumi okanye onye/imivo).
 Ixabiso: Bubungakanani lenani nalinye xalicazululiwe (umz., 70 kwinani elingu- 7 kuma- 78).

Iimpindulo kwiincwadi zemisebenzi

Umsebenzi wokuhlola 2

Iphepha 23–26

1. $38 + 26 = 64$ (indlela yetebile)
2. a. $24 + 45 = 69$ b. $56 + 16 = 72$
 c. $70 + 11 = 81$ d. $42 + 53 = 95$
 e. $61 + 26 = 87$ f. $64 + 32 = 96$

Umsebenzi

- | | | |
|--|--|--|
| 1. $24 + 45 =$
$24 = 20 + 4$
$45 = 40 + 5$
$20 + 40 = 60$
$4 + 5 = 9$
$60 + 9 = 69$ | 2. $64 + 32 =$
$64 = 60 + 4$
$32 = 30 + 2$
$60 + 30 = 90$
$4 + 2 = 6$
$90 + 6 = 96$ | 3. $56 + 16 =$
$56 = 50 + 6$
$16 = 10 + 6$
$50 + 10 = 60$
$6 + 6 = 12$
$60 + 12 = 72$ |
| 4. $42 + 53 =$
$42 = 40 + 2$
$53 = 50 + 3$
$40 + 50 = 90$
$2 + 3 = 5$
$90 + 5 = 95$ | 5. $61 + 26 =$
$61 = 60 + 1$
$26 = 20 + 6$
$60 + 20 = 80$
$1 + 6 = 7$
$80 + 7 = 87$ | 6. $70 + 11 =$
$70 = 70$
$11 = 10 + 1$
$70 + 10 = 80$
$1 = 1$
$80 + 1 = 81$ |

Umsebenzi

1. $697 + 10 = 707$ kunye $697 + 100 = 797$
 2. $235 + 10 = 245$ kunye $235 + 100 = 335$

Umsebenzi

1. a. $6 \times 3 = 3 + 3 + 3 = 18$
 b. $4 \times 5 = 5 + 5 + 5 + 5 = 20$
 c. $5 \times 5 = 5 + 5 + 5 + 5 + 5 = 25$
 d. $3 \times 7 = 7 + 7 + 7 = 21$
2. a. $40 \div 5 = 8$ 3. a. $4 \times 5 = 20$
 b. $30 \div 10 = 3$ b. $3 \times 7 = 21$
 c. $24 \div 2 = 12$ c. $9 \times 2 = 18$
 d. $50 \div 10 = 5$ d. $5 \times 6 = 30$
4. a. $40 \div 5 = 8$
 b. $24 \div 2 = 12$
 c. $30 \div 2 = 15$
 d. $50 \div 10 = 5$

Amaqhezu nokwabiwa kwawo

Intshayelelo	Izinto zokusebenza
<p>Qala ngebali elizalanayo ngabahlobo ababelana ngezinelisi ezahlukeneyo (umzekelo ipitsa, isonka, nekeyiki) buza ukuba bazakohlula njani ngokulinganayo.</p> <p>C haza umxholo wamaqhezu njengendlela yokusebenzisa ukwahlula-hlula.</p> <p>Inkcazelo: Bachazele ukuba iqhezu ngumlinganiselo osuka kwinto epheleleyo kwaye imelwe linani elingezantsi kwi qhezu (umzekelo $\frac{1}{4}$).</p> <p>lingcebiso zokufundisa</p> <p>Bakhuthaze ngemisebenzi ephathekayo besebenzisa amaqhezu asikwe azimilo ezifanayo nezi linganayo.</p> <p>Sebenzisa imizekelo ebonakalayo rhoqo ukuze ugxininise ulwazi.</p> <p>Bavumele abafundi beze nezabo iimbono xa bethelekisa amaqhezu ukuze bakhule ukwazini ngoku nokokwabo.</p>	<p>Itshati yamaqhezu okanye eyamanani angamaqhezu</p> <p>Izinto zokuzoba</p> <p>Amaphepha asikiweyo (amaxande kunye nezangqa)</p> <p>Amaphetshana okusebenza aneengxaki ngamaqhezu</p>
Indlela yokwenza imiyalelo	Amagama amatsha
<p>Ukuqonda udonga leqhezu: Xhoma itshati yamaqhezu.</p> <p>Cela abafundi bakhangele zingaphi iikota, izithandathwana, nezixhenxana, ezenza into epheleleyo.</p> <p>lingxaki zokwaba: Kwimizekelo engasentla abafundi bebesohlula-hlula izinekisi (iipitsa, isonka,) ngokulinganayo phakathi kwabahlobo.</p> <p>Sombulula ukwahlula-hlula ubonise onke amanyathelo ususa amaqhezu alingane kwinto epheleleyo.</p> <p>Thelekisa amaqhezu: Sebenzisa amaqhezu utholekisa ubungakanani kwinto epheleleyo ubonise amaqhezu ($\frac{1}{2}$ ne $\frac{1}{4}$).</p> <p>Sebenzisa imibuzo ephenduleka ngoluhlobo YINYANI OKANYE AKUYONYANI phakathi kwamaqhezu amakhulu kunye namancinane.</p> <p>Ukohlula amaqhezu abonakalayo: Zoba iimilo ufake amaqhezu uwohlule ngemibala ucele abafundi bawachaze lamaqhezu bewohlula ngombala.</p> <p>Hlola ukulingana usebenzisa izibonakalayo: Zoba iimilo ezimbini ufake imibala ezakohlula imilo nganye ngokulinganayo. Buza abafundi ukuba amaceba anemibala ayalingana okanye awalingani na?</p>	<p>Iqhezu: ngumlinganiselo osuka kwinto epheleleyo.</p> <p>Linani leqhezu ngaphezulu: linani elibonisa ukuba usike kwinto enye epheleleyo liba ngaphezulu</p> <p>Linani leqhezu elingaphantsi: elinani libangezantsi libonisa ubungakanani bento esikwe ngokulingana kwinto epheleleyo.</p> <p>Amacala alinganayo: Wahlula into ngokulinganayo.</p>