ISayensi yeMvelo neThekhnoloji

Ibanga 4 (Ithemu lesi-4)

CAPS

sasol
reaching new frontiers

Isayensi yeMvelo neThekhnoloji

Ibanga lesi-4

CAPS

Ithuthukiswe futhi yaxhaswa njengephrojekthi eqhubekayo yiSasol Inzalo Foundation ngokubambisana neSiyavula kanye namavolontiya.

Isatshalaliswa nguMnyango Wezemfundo Eyisisekelo.

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Izinhlamvu ze-Thunderbolt Kids ekuqaleni zadalwa njengengxenye ye-Kusasa project *(www.kusasa.org),* a Shuttleworth Foundation initiative. I-Shuttle-worth Foundation inikeze imvume yokusetshenziswa kwalaba balingisi kanye umsebenzi wobuciko ohlobene.

UHLU LWABABHALI

Le ncwadi ibhalwe nguSiyavula namavolontiya othisha, izifundiswa nabafundi. USiyavula ukholelwa emandleni omphakathi nokusebenzisana.
Ngokuqeqesha amavolontiya, ukuwasiza ukuthi axhumane ezweni lonke, ukuwakhuthaza ukusebenzisana nokusebenzisa ubuchwepheshe obukhona, umbono uwukudala nokusebenzisa izinsiza zemfundo ezivulekile ukuze kuguqulwe indlela esifundisa nokufunda ngayo, ikakhulukazi eNingizimu Afrika. Ukuthola eminye imininingwane yokuthi ungazibandakanya kanjani emphakathini kanye namavolontiya, vakashela *ku-www.siyavula.com*

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Ukubonga okukhethekile kuya e-St John'sCollege eGoli ngokubamba imicimbi yokubhala eholele enguqulweni yokuqala yalezi zincwadi zokusebenza.

LENA NGAPHEZU KWENCWADI YOMSEBENZI!

Ukuze udawunilode lezi zincwadi zokusebenza noma ufunde kabanzi ngalo msebenzi, vakashela iwebhusayithi ye-Sasol Inzalo Foundation ku- *http:// sasolinzalofoundation.org.za*

Siyakwamukela kwiBanga lesi-4 nakwiSayensi Yemvelo neThekhnoloji!
Joyina i -**Thunderbolt Kids** ohambweni lokuhlola umhlaba osizungezile.

Sawubona! Igama lami **nginguFarrah.**

Izifundo engizikhonzile esikoleni yilapho ngikwazi khona ukusungula izinto nokucabanga. Kodwa, bewazi, lokhu akukhona kuphela ekilasini lobuciko noma idrama?! Singakwazi futhi ukusungula izindlela zokwenza iSayensi neThekhnoloji. Lokhu kuyiqiniso ikakhulukazi lapho ucabanga ngezindlela ezintsha zokuphendula umbuzo ngophenyo Lwesayensi noma ukudweba idizayni yokuxazulula inkinga.

Ngikuthanda kakhulu nokuba ngaphandle ezweni lemvelo elingizungezile. Yingakho ngizohamba nawe nge **-Mpilo neNhlalo neZakhiwo.** Ngicabanga ukuthi sinenhlanhla yokuhlala endaweni enhle njengaseNingizimu Afrika, enemibala eminingi nezitshalo nezilwane. Ngijabule kakhulu ukuqala ukufunda okwengeziwe ngomhlaba ophilayo osizungezile.

USophie ungumngane wami omkhulu futhi ungifundisa indlela yokucabanga ngokucophelela nokuxazulula izinkinga ngokusebenzisa ingqondo, okuyikhono elihle kakhulu ukuba nalo kwiSayensi. Nakuba singathukuthelana, njengabangane abakhulu, sijabula kakhulu ndawonye futhi sifunda okuningi komunye nomunye.

Sawubona! Igama lami **nginguTom.**

Nginezindawo ezimbili lapho ngijabule kakhulu khona! Eyokuqala ikwilebhu yeSayensi ngoba yilapho siqala khona ukusungula izinto futhi sihlukane namaphrojekthi nokuhlola! Indawo yesibili engiyithandayo igceke le-junk! Uyazi ukuthi zingaki izinto ezithakazelisayo ongazithola lapho?! Ngisebenzisa lezi zinto ekusungulweni kwami kwakamuva.

Kungakho ngijabule kakhulu ngokusebenzisana nawe **kumaMetha namaMethiriyeli neZakhiwo.** Sizofunda ngazo zonke izinhlobo zezinto ezisizungezile, futhi ikakhulukazi indlela yokuqinisa izinto zokwakha kanye nokwenza izakhiwo eziqinile.

Ngiphinde ngizijabulele izibalo nokucabanga ukuthi singazixazulula kanjani izinkinga ngendlela enengqondo. UJojo ungomunye wabangane bami abakhulu, nakuba angaba nobudedengu ngezinye izikhathi! Kodwa, uJojo uyangisiza ukuthi ngizibandakanye nomzimba wami wonke lapho ngizama ukuxazulula izinkinga ezimpilweni zethu zansuku zonke, hhayi nje ukusebenzisa ingqondo yami.

Kwenzenjani! Igama lami **nginguJojo.**
Ngifuna nje ukungena ngqo kulo nyaka, ikakhulukazi iSayensi Yemvelo neThekhnoloji. Nokho, ngezinye izikhathi, ngikuthola kunzima ukuhlala ngiinganyakazi ekilasini njengoba ngifuna ukuvuka ngenze izinto! Uthisha wami uvame ukuthi ngine-eneji eningi futhi ngilwela ukuhlala ngiinganyakazi ekilasini. Mhlawumbe yingakho ngihamba nawe nge **-Eneji noShintsho kanye namaSistimu neKhontroli** kanye nawe kulo nyaka.
Ngibheke ngabomvu ukuqonda ngempela ukuthi iyini “i-eneji”! Futhi, sizokwenza izinsimbi zomculo kulonyaka. Ingxenye enhle ngeSayensi yeMvelo neThekhnoloji ukuthi sifunda ngokwenza. Sinemigomo nezinjongo kanye nemibuzo esifuna ukuyiphendula futhi ngihlale njalo ngingowokuqala ukugxumela ekwenzweni!
Mina noTom senza iqembu elihle kakhulu ngoba unekhono elihle ekucabangeni nasekuhleleni bese elandela indlela yokwenza. Kodwa, ngicabanga ukuthi ngingalekelela ngezinye izikhathi ngoba uTom ubuye afune ukucabanga kakhulu, kanti iSayensi neThekhnoloji kufanele ubambe iqhaza uqali uhlole.

Sawubona! Igama lami **nginguSophie.**

Enye yezindawo engizikhonzile ukuzivakashela esikoleni umtapo wolwazi. Ngiyakuthanda ukufunda incwadi entsha - kuningi ongakufunda nokuthola mayelana nomhlaba wethu!

Ngihlale ngibuza imibuzo futhi ngokuvamile le mibuzo ayikabi nazo izimpendulo.
Lokhu kuyathakazelisa njengoba siqala ukwenza i-theory mayelana nokuthi sicabanga ukuthi impendulo ingaba yini. Yingakho ngikujabulela kakhulu ukufunda ngomkhathi njengoba kukuningi esingakwazi. Kuwo wonke umlando abantu bebelokhu bebuza imibuzo mayelana nomkhathi nendawo yethu endaweni yonke. Yingakho ngizohamba nawe ku**Mhlaba kanye nangale Kwawo kanye namaSistimu neKhontroli** njengoba siqala ukufunda ngeplanethi yethu enguMhlaba kanye nesimisethu sonozungezilanga.

Ngiyathanda futhi ukuzwakalisa umbono wami nokuphikisana ngesihloko esithile. Kufanele unginikeze amaphuzu amahle kakhulu ukuze ngiqinisekise umbono wakho! Ngiyakuthanda ukuhlola no-Farrah njengoba engisiza ukuthi ngibe nobuciko futhi ngibe nemicabango emihle ngendlela engicabanga ngayo. Ngingaba nokungabaza futhi ngingakukholwa konke engikufundayo. Kodwa, lokhu kubaluleke kakhulu kwiSayensi njengoba akumele njalo samukele yonke into njengeyiqiniso.

Joyina i

-Thunderbolt Kids

ngokwengeza imininingwane yakho lapha!

Igama lami ngu:

____

Isihloko engisithandayo yilesi:

____

Ngezimpelasonto, ngithanda uku:

____

____

Amagama abangani bami yilawa:

____

____

Ngolunye usuku, ngifuna:

____

____

STICK OR DRAW
A PICTURE
OF YOURSELF
HERE!

OKUQUKETHWE

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IPlanethi uMhlaba nangale Kwawo
kanye namaSistimu neKhontroli

1 IPlanethi uMhlaba

IMIBUZO EBALULEKILE

- UMhlaba umise okwebhola. Pho kungani singawi ebholeni?
- Uma uMhlaba ubunjwe njengebhola, kungani ubukeka uyisicaba?
- Uyini umehluko phakathi kwezwekazi nesiqhingi?
- Ingabe ulwandlekazi nolwandle yinto efanayo?

1.1 Izimpawu zoMhlaba

UMhlaba uyikhaya lethu. uyiPlanethi esiphila kuyo. UMhlaba wethu uyiPlanethi ekhethekile kakhulu, yingakho singaphila kuyo. Ake sibheke ukuthi kungani uMhlaba ukhethekile.

AMAZWI AMASHA

- uphawu
- ukugugula
- indawo yokuhlala
- athmosfiye
- isafesi
- ulwandlekazi
- izwekazi
- isiqhingi

Izimpawu kwisafesi yoMhlaba

UMhlaba yindawo lapho bonke abantu behlala khona. Umhlabathi ongaphansi kwezinyawo zakho uyingxenye yoMhlaba. Siphila phezu komhlaba. Isafesi ingaphandle loMhlaba. Abavukuzi bangakwazi ukumba imigudu ejulile ngaphansi kobuso boMhlaba.

Izitshalo zimila emhlabathini. Umhlabathi uvela edwaleni elalijulile ngaphansi komhlabathi. Imvula ikhukhula inhlabathi futhi iveze idwala. Sithi imvula igugule inhlabathi nedwala njengoba ihlephula izingcezu ezincane futhi ikhukhule.

Njengoba imvula igugula ubuso bomhlaba yenza amagquma nezigodi, imifula nezilwandle. Izimpawu zoMhlaba amagquma nezigodi, imifula nolwandle. Buka lezi zithombe ezilandelayo ezibonisa izimpawu ezihlukile zobuso boMhlaba.

Umfula i-Orange.

Kunamadwala amaningi kule ndawo.

Ugu lolwandle olunamadwala ku-Garden Route.

Isigodi esijulile phakathi kwezintaba.

Amagquma namapulazi ayisicaba.

Umfula ozungezwe izintaba.

Uyakhumbula ngenkathi sifunda ngezindawo zokuhlala eMhlabeni ngeThemu-1 kwiMpilo neNhlalo? Izimpawu zoMhlaba zinomthelela ekubeni khona kwezindawo zokuhlala.

I-EKHTHIVITHI: Izindawo zokuhlala eMhlabeni

IMIYALELO:

1. Bheka izithombe ekhasini eledlule lapho i-ekhthivithi ebikhombisa izimpawu ezahlukene zoMhlaba.
2. Phendula imibuzo engezansi.

IMIBUZO:

1. Yisho ezinye zezinto eziphilayo ongazithola eMhlabeni.

____

____

____

2. Ezithombeni ezingenhla, zihlala kuphi izinyoni?

____

____

3. Ezithombeni ezingenhla uhlala kuphi ufishi?

____

4. Izinkomo zingahlala kuphi?

____

5. Hlobo luni lwezilwane ezingaphila ogwadule? Ugwadule yindawo cishe engenamanzi.

____

____

6. Hlobo luni lwezilwane ezihlala emahlathini?

7. Indawo yokuhlala iyindawo lapho izilwane zingathola khona ukudla, amanzi, indawo yokukhosela futhi zizale abantwana bazo. Izindawo zokuhlala zinezimpawu ezihlukile, njengokuthi indawo yokuhlala esogwini olunamadwala inamagagasi aqhumayo namadwala amakhulu. Yisho izindawo ezine ozibonile ezithombeni ezingenhla.

8. Yisho izinto ezine ezingaphili ozibona esithombeni esingenhla

UMhlaba unomoya kwi athmosfiye. Umoya usizungezile futhi uyanyakaza. Uma umoya unyakaza, sikubiza ngokuthi umoya ovunguzaya. Wazi ngokuthi uzwe uvunguza bese uyazi ukuthi umoya uyanyakaza. Uma ubheka phezulu esibhakabhakeni, ngezinye izikhathi ubona amafu. Amafu anyakaza emoyeni. Nakuba ungeke uwubone umoya, usewuphawu loMhlaba, njengamatshe nenhlabathi eyakha izintaba namagquma kanye namanzi akha imifula, izilwandle namachibi.

IMIBUZO

1. Ingabe ukhona yini umoya phezulu esibhakabhakeni? Nikeza isizathu sempendulo yakho.

2. Ingabe amafu aphakeme ngokulinganayo yini?

Amafu aphezulu esibhakabhakeni.

Amafu aphansi eduze nomhlabathi.

Ngezinye izikhathi, akulula ukubona izimpawu zoMhlaba uma simile emhlabathini ophansi. Ngokwesibonelo, ungase ume esigodini kodwa ungakwazi ukubona zonke izintaba ezizungezile. Futhi, izimpawu zoMhlaba zibukeka zihlukile kuye ngokuthi ubuka ukuphi. Ucabanga ukuthi inyoni endiza esibhakabhakeni izobuka indawo ngendlela efanayo nawe uma umi phansi? Ake sibheke.

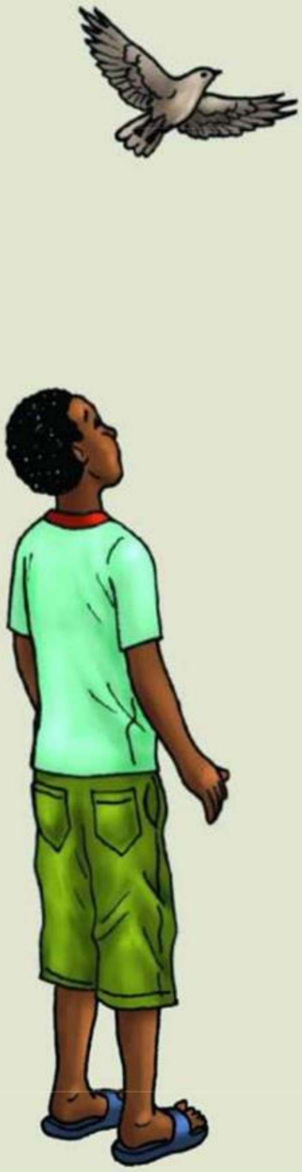
I-EKHTHIVITHI: Zibukeka kanjani izinto uma uzibuka uphezulu?

OKUDINGAYO:

- Ipensela
- amapensela anemibala
- irabha

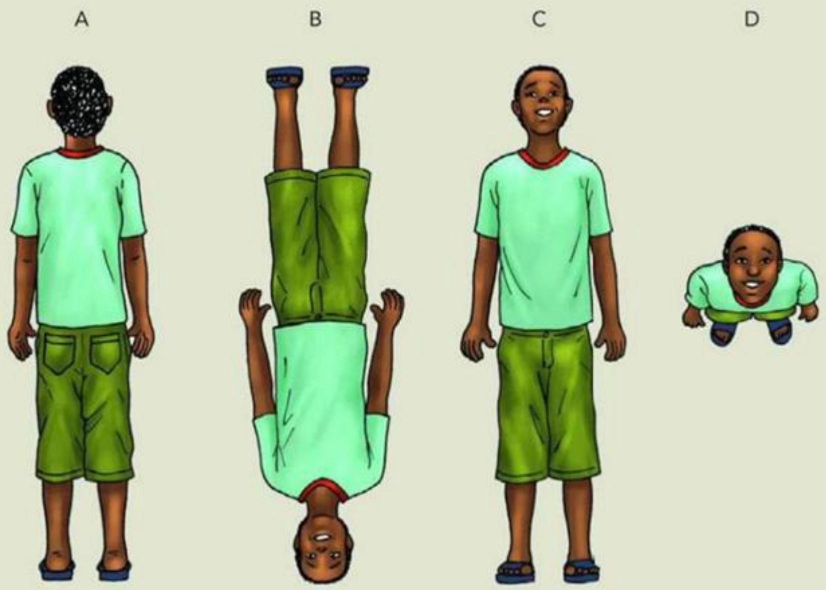
IMIYALELO:

1. Ake sibheke ukuthi inyoni ibonani uma indiza phezu komfana. Uyayibona yini inyoni indiza phezu komfana esithombeni esingezansi?
2. Phendula imibuzo elandelayo.



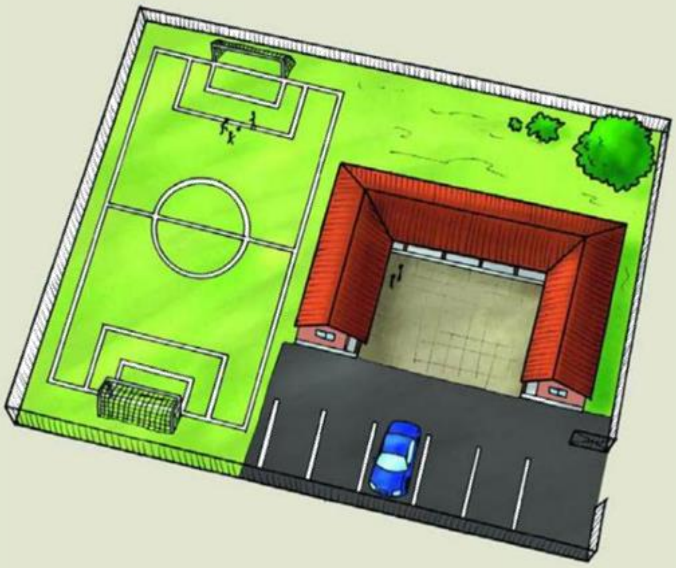
IMIBUZO:

1. Lapho inyoni ibheka phansi, ibonani? Khetha isithombe esifanele ku-(a), (b), (c) noma (d) Ukokelezela impendulo oyikhethile.



2. Zicabange uyimpukane kusilingi eklasini. Ubheka phansi ubone iklasi. Dweba iklasi njengoba impukane ilibona usebenzisa lesi sikhala esingezansi. Dweba ibhodi, ikhabethe, umnyango kanye netafula likathisha. Awudingi ukudweba abantu. Ungasebenzisa imibala ukudweba uma ufisa.

Isithombe esilandelayo sikhombisa isikole njengoba sibukwa inyoni endiza phezu kwaso.



Igceke lesikole njengoba libonwa yinyoni endiza phezulu.

3. Amalebheli anikezwe ngezansi kwezinye izinto ezisesithombeni. Dweba izinhlamvu A, B, C kanye no-D esithombeni ukuze ulebhele izinto ezifanele.
   - A - yisango
   - B - uphahla lwesikole
   - C - yinkundla yebhola likanobhutshuzwayo
   - D- yisihlahla

4. Indizamshini /ibhanoyi lindiza phezu kwesikole esifanayo. Lesi sithombe sikhombisa

wena ukuthi isikole sibukeka kanjani uma usendizeni; indizamshini indizela phezulu kakhulu kunenyoni.

Igceke lesikole njengoba libonwa abantu endizeni endizela ephansi.

5. Bheka inkundla yebhola likanobhutshuzwayo esithombeni sesikole. Lebula inkundla yebhola likanobhutshuzwayo esesithombeni.

6. Kungani inkundla yebholaibukeka incane kakhulu kunasesithombeni Esibonwa inyoni uma indiza phezu kwesikole?

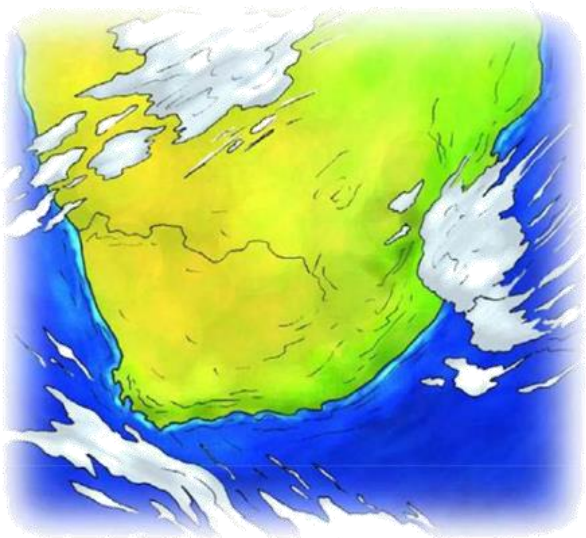
7. Bheka isitolo. Singaphesheya komgwaqo uma usuka esikoleni. Yini oyibonayo engaphandle esitolo?

Indizamshini manje isindizela phezulu kakhulu esibhakabhakeni. Manje usungabona ukuthi idolobha libukeka kanjani kubantu abasendizeni endizela phezulu kakhulu.

Idolobhana njengoba libonwa abantu endizeni endizela phezulu.

8. Esithombeni esilandelayo, lebhela umfula, umgwaqo kanye namafu.

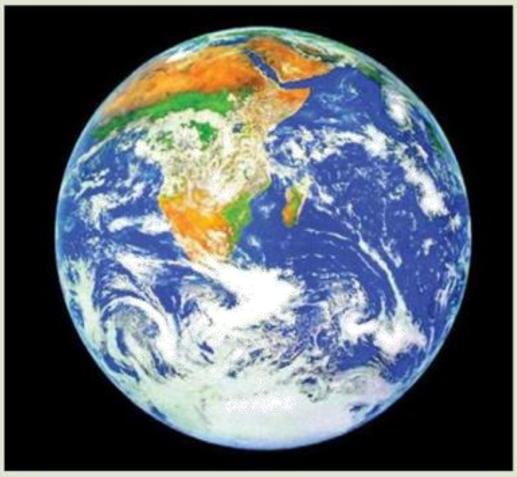
Esikubonile kule ekthivithi wukuthi uma ukhuphuka uya phezulu, izinto zibonakala ziya ngokuncipha kancane kancane. Ngakho-ke, uma kuthathwa izithombe use endizeni noma endizeni enophephela emhlane, sithola umqondo ongcono ngezimpawu zobuso boMhlaba futhi singabona nokuningi. Uma sikhuphukela phezulu siphinde sikhuphukele phezulu size sifike emkhathini ngeke sisakwazi ukukhuphuka kakhulu ngendizamshini. Bese osomkhathi basebenzisa umkhumbimkhathi (spacecraft) ukundizela phezulu kakhulu. Isithombeni esingezansi siveza ukuthi iNingizimu Afrika ibukeka kanjani kubantu abasemkhathini abandizela phezulu kwayo.



Yilokhu abantu abasemkhathini abakubonayo lapho bebuka iNingizimu Afrika besemkhathini.

I-EKHTHIVITHI: Ukubuka UMhlaba uma useMkhathini

Manje bheka isithombe ngezansi. Lesisithombe sathwetshulwa oSomkhathi besemkhathini.



IPlanethi uMhlaba. Lena indlela uMhlaba obukeka ngayo kumkhumbimkhathi kude kakhulu ngaphezu komhlaba.

IMIBUZO:

1. Umi kanjani uMhlaba?

2.Thola i-Afrika bese uyikhombe ngomunwe wakho.

3.Ziyini izingxenye eziluhlaza okwesibhakabhaka zesithombe?

---

4. Ziyini izingxenye ezimhlophe esithombeni?

---

5. Ukuphi umoya woMhlaba esithombeni?

6.EMhlabeni kungabe ulwandle yini oluningi noma umhlaba owomile na? Buka isithombe ukuze thola impendulo yakho.

Amazwekazi neziqhingi

Izwekazi liyingxenye enkulu yezwe eMhlabeni. Izwekazi linamazwe amaningi akulo. I-Afrika yizwekazi elinamazwe angaphezu kwama-50.

Umhlaba unamazwekazi ayisikhombisa, okuyilawa:

1. Afrika
2. ENyakatho Melika
3. INingizimu Melika
4. I-Asia

5.IYurophu

6.Australia

7.I-Antarctica

UMBUZO

Ngabe thina sihlala kuliphi izwekazi?

Ngabe uyazi yini ukuthi iyini iglobhu? Iglobhu iyimodeli ekhombisa ukuthi uMhlaba ubukeka kanjani. Iglobhu ikhombisa amazwekazi oMhlaba kanye nezilwandle. Izingxenye eziluhlaza okwesibhakabhaka zeglobe izilwandle. Ngezinye izikhathi kunzima ukukhuluma ngezingxenye ezihlukene zomhlaba ngaphandle kokuzibona, ngakho sebenzisa iglobhu.

imodeli yeglobhu ekhombisa amazwekazi oMhlaba.

I-EKHTHIVITHI: Thola amazwekazi kwi-globhu

AMAMETHIRIYELI:

- iglobhu

IMIYALELO:

1. Thola izwekazi lase-Afrika kwi globhu. Bonisa imiphetho ye Afrika ngomunwe wakho.
2. Khombisa ngomunwe wakho ukuthi iNingizimu Afrika ikuphi ne-Afrika.
3. Khombisa ukuthi la mazwe akuphi emhlabeni: iNamibia, iMozambique, iZimbabwe neBotswana. Lawa ngamazwe angomakhelwane be Ningizimu Africa.

4. Isithombe esingezansi yimephu eyisicaba yawo wonke amazwekazi oMhlaba. Yile ndlela amazwekazi abukeka ngayo, uma uthatha ikhava yephepha leglobhu bese ulendlala phezu kwetafula. Thola amazwekazi kwiglobhu bese ubhala amagama awo kule mephu eyisicaba.

Isiqhingi izwe elithile elinamanzi nxazonke zaso. IMadagascar neMauritius amazwe ase-Afrika ayiziqhingi.

I-EKHTHIVITH: Iziqhingi

OKUDINGAYO:

- I-atlasi noma iglobhu
- Ulwazi ngesiqhingi ozikhethele sona
- Izithombe zaleso siqhingi
- Amapensela anombala
- Izikelo

IMIYALELO:

1. Bheka ku-atlasi yakho noma kwiglobhu yakho futhi uthole isiqhingi esingasogwini lwaseNingizimu Afrika.
2. Qoqa ulwazi ngalesosiqhingi ululethe esikoleni.

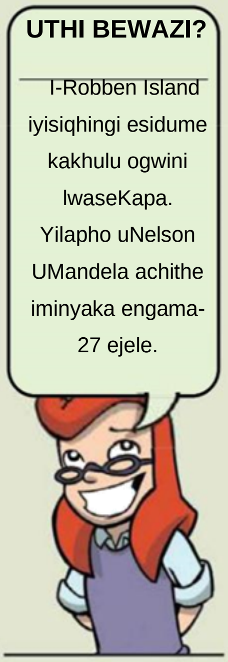
3. Ulwazi lwakho kufanele lukwazi ukuphendula le mibuzo elandelayo:

a. Lithini igama lesiqhingi?

b. Sisithola kuluphi ugu lwaseNingizimu Afrika lesi siqhingi?

c. Iliphi idolobhakazi noma idolobha laseNingizimu Afrika eliseduze kakhulu kwalesiqhingi?

d. Lesi siqhingi sikuluphi ulwandlekazi?



e. Singakanani ubukhulu isiqhingi?

f. Ingabe bakhona yini abantu abahlala kulesi siqhingi? Kungani, noma kungani kungenjalo?

g. Kungani lesi siqhingi sibalulekile?

h. Kungani kuyisiqhingi kungelona izwekazi?

4. Sebenzisa isikhala osinikeziwe ukubhla incwajana yolwazi mayelana nesiqhingi.

UMBUZO

Uyini umehluko phakathi kwezwekazi nesiqhingi?

Izilwandlekazi nezilwandle

Iningi loMhlaba limbozwe amanzi, futhi lokhu ungakubona ebalazweni. Lapho osomkhathi beya emkhathini, wonke amanzi eplanethi yethu enza ibukeke kakhulu iluhlaza okwesibhakabhaka. Yingakho sibiza uMhlaba ngokuthi iplanethi eluhlaza okwesibhakabhaka.

I-EKHTHIVITHI: Thola izilwandlekazi kwiglobhu

OKUDINGAYO:

- iglobhu

IMIYALELO:

1. Phendula iglobhu uyizungezise bese ubheka izilwandle ezilandelayo: i-Indian Ocean, i-Atlantic Ocean, iPacific Ocean.
2. Manje bhala amagama alezi zilwandlekazi ezintathu ukhombise ukuthi zitholakala kuphi ebalazweni eliyisicaba lo umhlaba.

UMBUZO:

1. Ingabe isafesi yoMhlaba inendawo eyomile eningi noma inamanzi amaningi na?

UTHI BEWAZI?

71 % wobuso bomhlaba bumbozwe ngamanzi.

Abantu abaningi basebenzisa kokubili igama elithi "ulwandlekazi" nelithi "ulwandle" lapho bekhuluma ngolwandlekazi. Kodwa, uma sikhuluma ngesafesi yoMhlaba, kubalulekile ukwazi ukuthi kukhona umehluko phakathi kolwandlekazi nolwandle.

Ulwandlekazi luyinqwaba yamanzi ehlanganisa ingxenye enkulu yoMhlaba. Ulwandle luncane kakhulu kunolwandlekazi kanti ulwandlekazi luvamise ukuzungezwa umhlaba emaceleni athile.

1.2 UMhlaba eMkhathini

UMhlaba uyiplanethi emkhathini. EMhlabeni singabona iLanga, iNyanga nezinkanyezi. UMkhathi uqala cishe kusuka ku-100 km kuya phezulu uma usuka kwisafesi yomhlaba. UMkhathi uyindawo engavamile futhi yangaphandle kithi, yingakho abantu benentshisekelo ngokwenzeka emkhathini izinkulungwane zeminyaka eyedlule. Awukho umoya emkhathini.

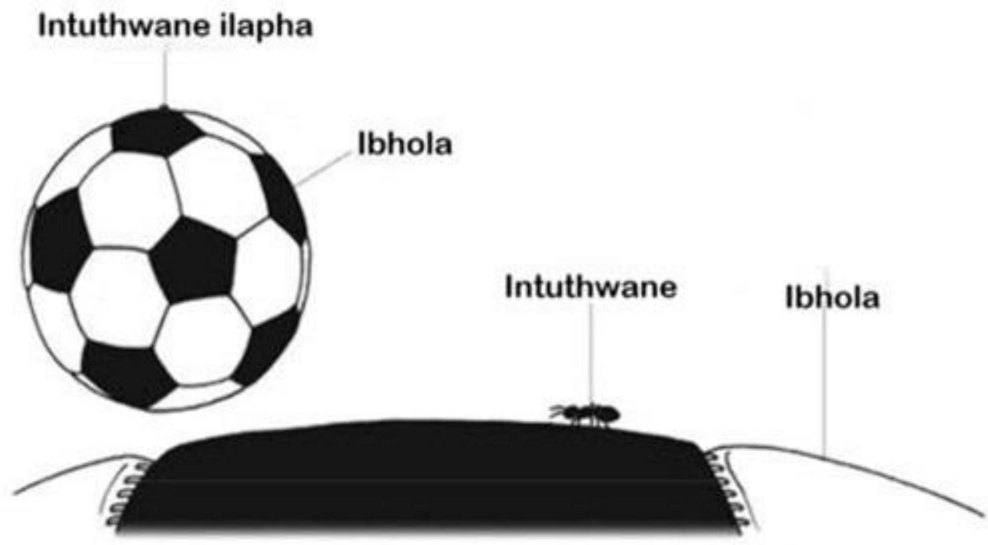
Ake sibheke kabanzi uMhlaba uma siwubuka siseMkhathini!

UMhlaba umise okwebhola

Sibonile ukuthi uMhlaba umise okwebhola. Into emise okwebhola likanobhutshuzwayo ibizwa ngokuthi i-sfiye. Sibona ukuma koMhlaba lapho sikhuphukela phezulu kakhulu futhi sisuka kude nawo. Isibonelo, uSomkhathi okumkhumbimkhathi angabona ukuma koMhlaba lapho ebuka ngefasitela lomkhumbimkhathi futhi ebuyela eMhlabeni. Kodwa uma sibuka ngaphandle kwefasitela leklasi, uMhlaba ubukeka uyisicaba, hhayi njengebhola. Kudala abantu abaningi babekholelwa ukuthi uMhlaba uyicaba, ngoba **ubukeka** uyisicaba.

UMhlaba mukhulu kangangokuthi akubonakali ukuthi ugobile.

Yenza sengathi uyintuthwane ehlezi ebholeni. Umncane kakhulu (intuthwane) kangangokuthi ibhola libukeka liyisicaba. Awuliboni elinye icala lebhola, futhi awuboni ukuthi yibhola. Buka isithombe sentuthwane ebholeni esingezansi. Konke intuthwane engakubona kubukeka kuyisicaba. Ayazi nakwazi ukuthi isebholeni eliyindilinga ngoba likhulu kakhulu kunayo!



Intuthwane ebholeni ibona indawo eyisicaba njengoba incane kakhulu uma iqhathaniswa nebhola.

Lokhu kuyafana nathi eMhlabeni. Sibancane kakhulu uma siqhathaniswa noMhlaba kangangokuthi uma simi phezu komhlaba, uMhlaba ubukeka uyisicaba kithi. Asikwazi ukubona ukuthi empeleni uMhlaba uyindilinga, ngaphandle uma sibheka izithombe zomhlaba ezithathwe emkhathini!

Uma ngimi eNingizimu Afrika, eseduze nendawo ephansi, kungani pho ngingawi phezu komhlaba?!

IMIBUZO

Kungani singawi phansi eMhlabeni uma uMhlaba uyibhola?

I-EKHTHIVITHI: Iyiphi indlela eya phezulu neya phansi eMhlabeni?

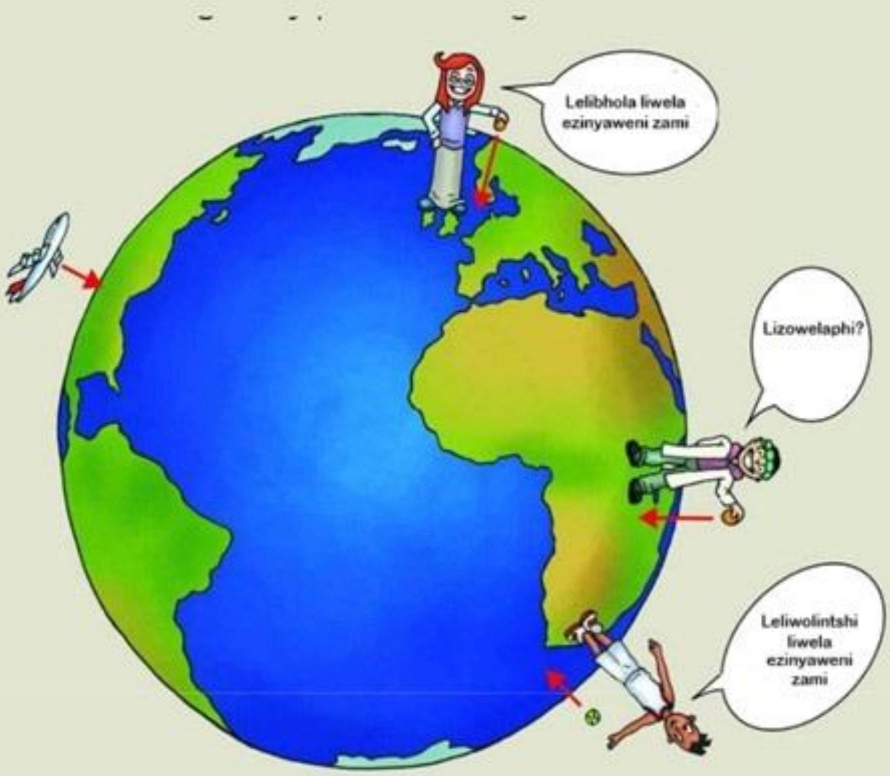
OKUDINGAYO:

- iglobhu
- ipensela
- irabha

IMIYALELO:

1. Funda lesi siqeshana bese uphendula imibuzo.

Uma ipensela liwe etafuleni lakho, liyawa ngoba uMhlaba nepensela kudonsana ngenxa yendonselaphansi (gravity). Indonselaphansi idonsela yonke into enkabeni yoMhlaba. Kodwa khumbula ukuthi uMhlaba umise okwebhola. Isithombe sikubonisa ukuthi indonselaphansi izidonsa kanjani izinto.



UJojo, u-Sophie kanye no-Tom ngamunye bamile baqondile eMhlabeni.

2. Bheka futhi iglobhu, uthole iNingizimu Afrika kanye ne Ngilandi eglobhini.

3. Manje bheka isithombe; sikhombisa uJojo emi eNingizimu Afrika; uma ewisa ibhola phansi liwela ezinyaweni zakhe bese ethi indlela ibheke phansi.

4. Manje buka uSophie eme eNgilandi. Lapho ewisa iwolintshi, liwela ezinyaweni zakhe futhi bese ethi libheke ezansi. Ngakho-ke kubo bobabili, uJojo noSophie isiqondiso sibheke phansi, enkabeni yoMhlaba.

UMBUZO:

1. Thola izwe iCongo kwiglobhu, bese ubheka isithombe uTom umi eCongo. Dweba umcibisholo ozokhombisa inkombandlela lapho ibhola lizowela khona lisuka esandleni sikaTom.

Ubuphansi buchaza ukusondela "enkabeni yoMhlaba"! Kukhona amandla adonsa Izinto zisondelane. Lawomandla siwabiza nge "gravity". Siyadonseka sonke sisondele eduze kwenkaba yoMhlaba ngenxa yalamandla egravity.

IMIQONDO EMQOKA

- UMhlaba uyiplanethi. Kunamanye amaplanethi ayisikhombisa ahambayo azungeze iLanga.
- Izimpawu zoMhlaba yizwe elinezintaba nezigodi, amanzi emadamini, emachibini, emifuleni nasezilwandle, kanye nomoya ozungeze umhlaba wonke.
- Izindawo ezinkulu kakhulu zoMhlaba zibizwa ngokuthi amazwekazi, futhi izindawo zoMhlaba ezinamanzi nxazonke zazo zibizwa ngokuthi iziqhingi.
- Izinto eziphilayo zimila emhlabeni nasemanzini. UMhlaba unezindawo eziningi zokuhlala zezidalwa eziningi eziphilayo.
- Uma sikhuphukela phezulu ngaphezu koMhlaba, yonke into ibonakala ihlukile ngendlela ebukeka ngayo lapho siphansi.

UKUBUYEKEZWA:

1. Ikhala namehlo nomlomo womuntu **kuyizimpawu** zobuso bakhe. Yisho **izimpawu** ezine zoMhlaba.

2. Umhlaba umise okwebhola. Abantu abaweli phansi kwibhola. Siyini isizathu salokho?

3. Bhala amazwekazi angu-7 oMhlaba.

4. Yisho isiqhingi esiseduze neNingizimu Afrika.

5. Uma sibheka phezulu esibhakabhakeni emini, singabona izinto phezulu. Ebusuku, singabona ezinye izinto ezihlukile kulezi esizibona emini.

   Qedela ithebula. Izimpendulo ezimbili zokuqala usuwenzelwe.

Izinto engizibona emini	**Izinto engizibona ebusuku**
Izinyoni	Izinkanyezi

6. Yiziphi kulezi zinto ozibhale ethebuleni eziphakeme kune zinye? Bhala lezi zinto ngokulandelana kwazo. Bhala into eseduze nenhlabathi kuqala, bese ubhala leyo ephezulu kakhulu ekugcineni. Utshani bukhula phansi, ngakho ubhala "utshani" kuqala.

6. Qedela le misho engezansi kwebhokisi. Bhala umusho **wonke** imigqeni evuliwe, bese usebenzisa amanye amagama asebhokisini lamagama ukuqedela umusho wakho.

Ibhokisi lamagama:

- amanzi
- izwekazi
- IPlanethi eluhlaza okwesibhakabhaka
- ingxenye eyodwa
- amafu

a. Iplanethi uMhlaba ibonakala iluhlaza okwesibhakabhaka nokumhlophe emkhathini. Ibizwa ngokuthi __________ ngoba imbozwe _________ kanye ___________.

b. Izwekazi isiqephu esikhulu sezwe. Isibonelo, i-Afrika iyi ______________ bese iNingizimu Afrika ibe ________________ yase-Afrika.

Manje njengoba sesifundile ngeplanethi yethu, UMhlaba, asidlulele emkhathini futhi sifunde okwengeziwe ngeLanga!

2 ILanga

IMIBUZO ESEMQOKA

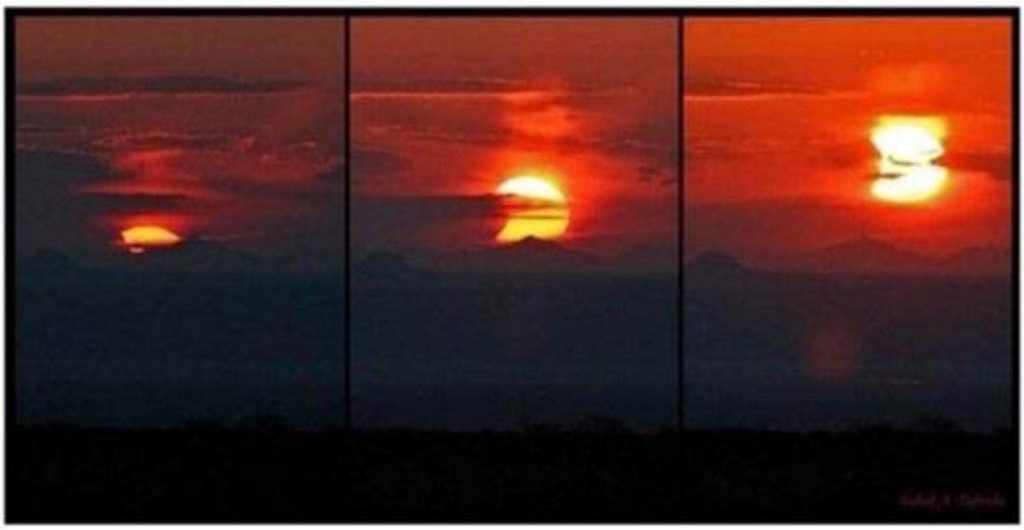
- Lenziwe ngani iLanga?
- Zenziwa ngani izinkanyezi?
- Likude kangakanani iLanga?
- ILanga libukeka lilincane kakhulu esibhakabhakeni, pho lingaba likhulu kanjani kunoMhlaba?
- Kungani iLanga libaluleke kangaka kithi nakuzo zonke izinto eziphilayo ezikhona emhlabeni?

AMAGAMA AMASHA

- isisi
- i-hydrojini
- izingakushisa
- idayamitha
- imodeli
- isibonisakude
- ukuncibilika

2.1 ILanga liyinkanyezi eseduze kakhulu

Sibiza iLanga ngenkanyezi. Kodwa mhlawumbe ubucabanga ukuthi izinkanyezi zibonakala ebusuku kuphela? Kungani iLanga libukeka lilikhulu kakhulu kunezinye izinkanyezi ezibenyezelayo? Lokhu kungenxa yokuthi iLanga liyinkanyezi eseduze kakhulu kithi eMhlabeni. Ezinye izinkanyezi esibhakabhakeni zikude kakhulu kithi. Ake sifunde kabanzi ngeLanga



Izithombe ezikhombisa ILanga ngezikhathi ezihlukile zokusa.

ILanga liyibhola elikhulu lesisi esishisa kakhulu

ILanga lethu liyibhola elikhulu
Elishisa kakhulu lesisi sehaydrojini.
Isisi siyashintshasibe yisisi
se-hiliyamu, ngaso sonke isikhathi.
Lolu shintsho lukhipha i-eneji
Eyenza iLanga lishise kakhulu.

ILanga libukeka kanje uma lithwebulwe ngekhamera ekhethekile.

Izingakushisa leLanga lilinganiselwa ku-5 500 sesilinganisi sezingakushisa (Celcius) kwisafeysi. U-5 500 isilinganisi sezingakushisa Celsius ushisa ngokwanele ukuncibilikisa amadwala!

ILanga linamabala amnyama kulo esiwabona ngamakhamera akhethekile. Lamabala amnyama ahamba kwisafeysi yeLanga njengoba isisi eLangeni sihamba ngaso sonke isikhathi. Esithombeni ungabona ukuthi iLanga likhipha imifudlana emikhulu yesisi esishisayo. Uyakubona lokhu ngezansi kwesokunxele esithombeni?

ILanga likhulu kakhulu kunoMhlaba

ILanga lingabukeka lilincane kunoMhlaba phezulu esibhakabhakeni. Lokhu kwenziwa ukuthi likude kakhulu. ILanga likhulu kakhulu kunoMhlaba.

I-EKTHIVITHI: Likhulu kangakanani iLanga uma liqhathaniswa noMhlaba?

OKUDINGAYO:

- isiqeshana lwepheyvmenti / isiqeshana seindawo egandayiwe
- irula noma itheyiphu yokukala
- ucezu lwentambo olude kuno-60 cm
- iqhezu likashoki

IMIYALELO:

1. Dweba indilinga engu-1 cm ububanzi endaweni egandayiwe ngeqhezu likashoki. Lomdwebo umele uMhlaba.

2. Manje, qhela emdwebeni wakho woMhlaba cishe ngamamitha angu-1.5 kuya ku-2 uqiniseke ukuthi uzinika isikhala esanele sokudweba iLanga.

3. Dweba indilinga engu-108 cm ububanzi – lomdwebo umele iLanga. **Ukuze udwebe indilinga enobubanzi obungu-108 cm,** bopha intambo kushoki. Kala intambo engu-54 cm ukusuka kushoki bese ubopha ifindo lapho. Bamba ucindezele phansi ifindo lentambo kupheyvmenti / endaweni egandayiwei bese uhambisa ushoki uzungeza ifindo ukuze kudwebeke indilinga.

IMIBUZO:

1. Uma iLanga lilikhulu kakhulu kunoMhlaba, kungani libukeka lilincane kangaka kithina?

Umdwebo okupheyvmenti ukhombisa umhlaba useduze neLanga. UMhlaba empeleni ukude kakhulu kuneLanga. ILanga liqhele ngamakhilomitha ayizigidi eziyi-150 ukusuka eMhlabeni (Lokho kungu-150 000 000 wamakhilomitha).

Leli ibanga elide kakhulu ukusuka eMhlabeni ukuya eLangeni. Ukuba ubuhamba ngemoto egijima ngesivinini esingu-120 km/h emgwaqeni onguthelawayeka (freeway), kungafanele uhambe iminyaka engu-146 ukuze ufinyelele eLangeni. Ngakho, iLanga likude kakhulu, likhulu kakhulu futhi lishisa kakhulu.

Uma iLanga likude, kungani libukeka lilikhulu kangaka? ILanga likhulu kangangokuthi kunzima ukuqonda ukuthi likhulu kangakanani. Imodeli yalo ingasisiza ukuba siqonde.

I-EKHTHIVITHI: Sebenzisa imodeli ukukhombisa ukuthi uMhlaba ukude kangakanani neLanga.

OKUDINGAYO:

- uhlamvu lweraysi; lihlephule phakathi.
- ibhola likanobhutshuzwayo
- indawo yokuhamba yezinyawo, njengenkundla yokudlala noma inkundla yebhola likanobhutshuzwayo

IMIYALELO:

1. Bheka isithombe esingezansi.

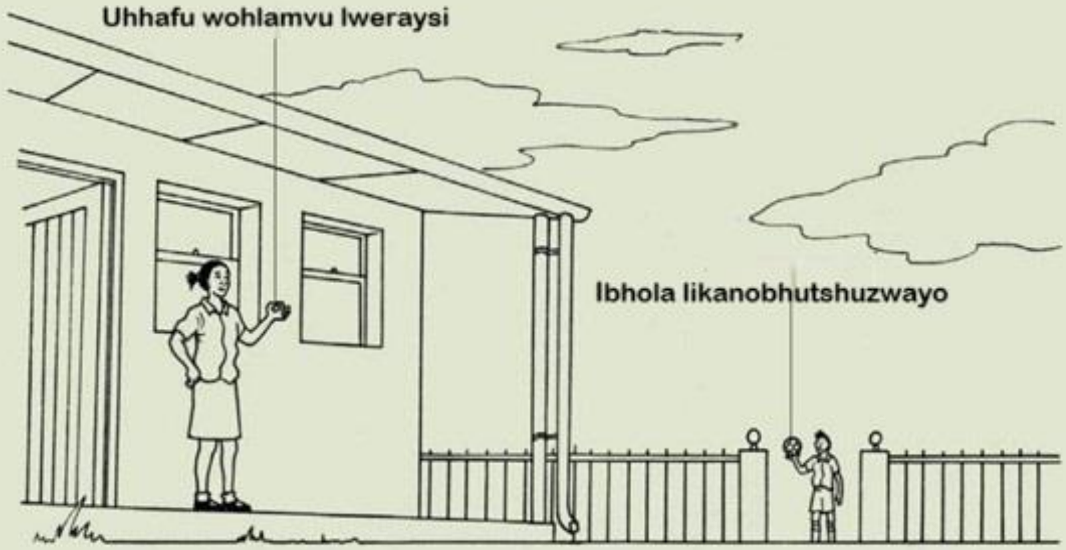
2. Umfundi oyedwa makame endaweni lapho kunendawo enkulu evulekile nxazonke zakhe. Lo mfundi makaphethe ibhola likanobhutshuzwayo; elimele iLanga.

3. Omunye umfundi makame eduze kwakhe abaphe uhhafu wohlamvu zeraysi, lona olumelele uMhlaba.

4. Umfundi ophethe irayisi akasuke eduze komfundi ophethe ibhola lezinyawo. Aqhele ngamagxathu angu-24 ubude, okungacishe kube ibanga elingamamitha angama-24 ukusuka eLangeni uya eMhlabeni.

5. Manje umfundi ophethe uhhafu wenhlamvu yeraysi, akahamba aye ngakwesokudla sakhe. Kufanele ngaso sonke isikhathi ahlale egcine ibanga elingamamitha angama-24 ukusuka ebholeni. Uma enza lokhu uhamba azungeza ibhola likanobhutshuzwayo.

Le modeli isikhombisa ukuthi uMhlaba omncane uhamba uzungeze iLanga elikhulu.



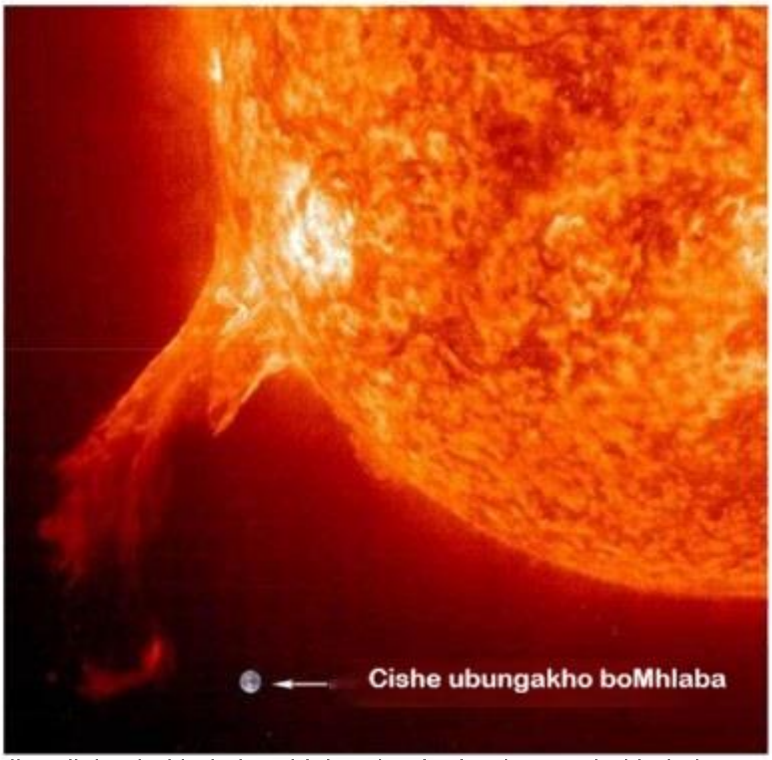
Ibhola likanobhutshuzwayo limelela iLanga, kanti ingxenye yohlamvu lweraysi imele uMhlaba.

IMIBUZO:

1. Yima amamitha angama-24 kude nebhola. Phakamisa umunwe owodwa phambi kwakho, bese uvala ibhola ngozipho lwakho. Ingabe ibhola lilingana ngempela nozipho lwakho?

2. Kungani ibhola libukeka lilingana nozipho lwakho?

ILanga likhulu kangangokuthi izinkulungwane ngezinkulungwane zeMihlaba zingangena zenele ngaphakathi kulo. Esithombeni ungabona ukuthi ubukhulu bawo buqhathaniswa kanjani.



Yile ndlela ubukhulu boMhlaba obuqhathaniswa nobukhulu beLanga. Umhlaba awusondelene kangako neLanga ngempela.

ILanga liyinkanyezi eseduze kakhulu noMhlaba

ILanga lethu linjengezinkanyezi esizibona esibhakabhakeni ebusuku. Eziningi zalezi zinkanyezi zinkulu kakhulu kuneLanga. Zibukeka zincane ngoba zikude kakhulu. Zonke izinkanyezi zenziwe ngesisi esikhazimulayo futhi esishisa kakhulu.

Uyazi yini ukuthi isibonisakude siyini? Sifana nesipopolo esikhulu esiqinile esivumela ukuthi sibheke izinto ezisemkhathini nezingaphandle kwawo. Singakwazi ukubona izinkanyezi ezingaba ngu-2 500 ngaphandle kokusebenzisa ibonisakude, kodwa uma sisebenzisa isibonakude singabona izigidi zezinkanyezi.

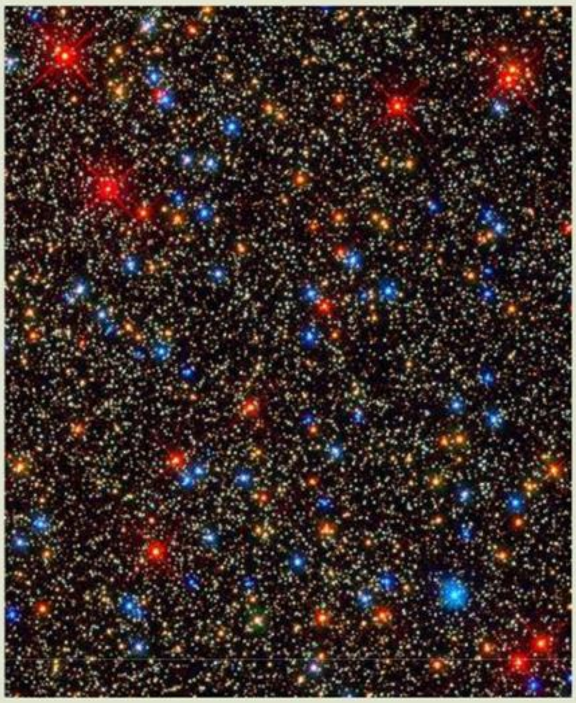
Amakhulu ezinkulungwane zezinkanyezi ezibonwa ngesibonisakude i-Hubble.

Izinkanyezi ezibukeka sinombala obomvu sa-olintshi azishisi njengeLanga, kodwa izinkanyezi ezibukeka sinombala oluhlaza sasibhakabhaka-mhlophe zishisa kakhulu kuneLanga.

I-EKHTHIVITHI: Imibala yezinkanyezi isitshela ngamazingakushisa azo

IMIYALELO:

1. Bheka isithombe esingezansi bese uphendula imibuzo elandelayo.



Lesi isithombe esivela ku-NASA seqoqo leziNkanyezi lika-Omega Centauri, esibonisa zonke izinkanyezi ezimibalabala.

IMIBUZO:

1. Yiziphi izinkanyezi eziningi phakathi kwezibomvu neziluhlaza sasibhakabhaka kulesi sithombe?

2. Yiziphi izinkanyezi ezishisa kakhulu?

3. ILanga liyinkanyezi enombala onjani?

ILanga liyinkanyezi eseduze koMhlaba. Inkanyezi yesibili eseduze ibizwa nge-Proxima Centauri. Ukukhanya okuvela elangeni kuthatha imizuzu engu-8 ukufinyelela emehlweni akho, kodwa ukukhanya okuvela ku-Proxima Centauri kuthatha iminyaka engaphezu kwe-4 ukufinyelela emehlweni akho. I-Voyager 1 umkhumbi-mkhathi owasuka eMhlabeni eminyakeni eminingi edlule. Uhambe kude neLangeni ngesivinini esingamakhilomitha ayi-17 ngomzuzwana! Uma iVoyager ingaya kwi-Proxima Centaur, bekungayithatha iminyaka engaphezu kwezinkulungwane ezi-73 ukufika.

UTHI BEWAZI?

Amasiko amaningi amadala wayebuka iLanga njengonkulunkulu ngenxa yomthelela omkhulu weLanga emhlabeni. Isibonelo, amaGibhithe kudalo, ayenonkulunkulu oyiLanga ababembiza ngo-Ra.

ILanga libalulekile empilweni yaseMhlabeni

Ngaphandle kweLanga, ukuphila emhlabeni bekungeke kwenzeke. Kungaba mnyama bhuqe futhi kubande kakhulu. Ngamanye amazwi, iLanga lisinika ukukhanya nokushisa. Ngenxa yalokhu kukhanya nokushisa, ezinye izinto eziningi ziyenzeka.

ILanga lithumela ukushisa nokukhanya eMhlabeni. UMhlaba uthola ingxenye encane kuphela yokushisa nokukhanya okuthunyelwa iLanga, kodwa nalokho kushisa kwanele ukusenza singakhululeki ngosuku elushisa kakhulu iLanga!

Sineka izingubo ngaphandle ukuze zishiswe iLanga, zome.

Abantu babevame ukusho isikhathi besebenzisa isidayelaLanga kanjena.

UMBUZO

Yini enye ongayicabanga ukuthi iLanga lisisiza ngayo eMhlabeni?

____

____

Abanye abantu banezifudumezi ezikhethekile ophahleni lwezindlu zabo. Lezi zibizwa ngokuthi izifudumezimanzi zelanga. Basebenzisa amandla okushisa avela eLangeni ukushisisa amanzi okugeza nokuwasha.

Isifudumezimanzi seLanga ophahleni lwendlu. Sixhunywe ethangini lamanzi.

UTHI BEWAZI?

Ukukhanya okuvela eLangeni kufika eMhlabeni cishe emizuzwini engu-8.

Ngeshwa ilanga nalo linezinto eziyingozi eMhlabeni, ikakhulukazi kubantu uma singazivikeleli ngendlela efanele.

Uma amanzi emvula anele engekho kungaba nesomiso.

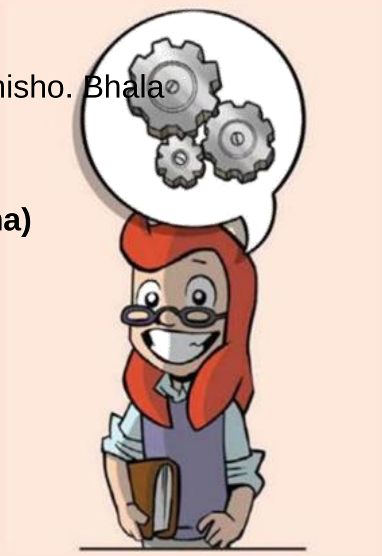
ILanga lingalimaza isikhumba sakho uma unganakile noma uma ungawugcobi ukhilimu esikhunjeni sethu.

IMIQONDO EMQOKA

- ILanga liyinkanyezi. Liyibhola lesisi elikhulu kakhulu. Lingaphezulu kwesigidi ngobukhulu kunoMhlaba!
- UMhlaba ungamakhilomitha ayizigidi eziyi-150 ukusuka eLangeni. Ibanga elide kakhulu lelo.
- ILanga lishisa kangangokuthi linikeza uMhlaba ukukhanya nokushisa eliwudingayo.
- Enye inkanyezi eseduze kodwa ibe ikude kakhulu, ibukeka njengechashaza elenziwe ngomakhanjani (pin) ephepheni.

UKUBUYEKEZWA:

Qedela le misho. Khetha amagama asebhokisini lamagama ukuqedela imisho. Bhala umusho wonke.



Ibhokisi lamagama: (awudingi ukuwasebenzisa wonke amagama)

isisi se-hydrogen isisi se-helium izitshalo ukukhanya ukushisa ingxenye yohlamvu lweraysi ILanga ibhola likanobhutshuzwayo iNyanga

1. Uma siqhathanisa ubukhulu boMhlaba nobukhulu be ______, uMhlaba ungusayizi We ___________ uma uqhathaniswa nosayizi webhola likanobhujuzwayo.

____

____

2. ILanga linikeza__________kanye ____________eMhlabeni. Zonke ________zidinga ukukhanya nokushisa.

____

____

____

3. ILanga alishi njengomlilo wezinkuni. ILanga liyashisa ngoba ______ ishintsha libe ____

____

____

____

2 UMhlaba kanye neLanga

IMIBUZO EBALULEKILE

- Kungani umhlaba uhamba uzungeze iLanga?
- Kungani kudlula izinsuku ezingama-365 phakathi kosuku lwami lokuzalwa nosuku lwami lokuzakwa olulandelayo?
- Luyini uhlelo lweLanga nokuluzungezile?

3.1 Ukuzungeza iLanga

Ezinyangeni ezine ezedlule phakathi nonyaka, izinsuku zazimfushane. Ubusuku babubanda kanti neLanga lalibukeka liphansi emini. Sesikwithemu yesine manje. Izinsuku zinde futhi iLanga liphakeme kakhulu phakathi nosuku. Maduze sizoba nehlobo. Khona-ke ubusika buzobuya futhi. Izinkathi zonyaka ziphinda njalo ngonyaka. Sithi izinkathi zonyaka ziyajikeleza.

Umjikelezo yilapho izinto zenzeka ngendlela efanayo, ngokuphindaphindiwe. Isibonelo, uyakhumbula ufunda ngomjikelezo wamanzi kuThemu yesi-2 kwiMetha namaMethiriyeli? Lona umjikelezo. Amanzi ayahwamuka olwandle, emachibini nasemifuleni abe umhwamuko wamanzi. Khona-ke umhwamuko uyajiya ube amanzi awuketshezi futhi.

Ososayensi bayachaza ukuthi kungani izinkathi zonyaka zishintsha. Izinkathi zonyaka zidalwa yi-**axial tilt.** Inkabamudwa yomhlaba ayiqondile, kodwa itshekile uma uyiqhathanisa nelanga.

Uma kuyihlobo eNingizimu Afrika....

….kusebusika eNgilandi.

UMBUZO

Yisho izinkathi zonyaka ezine bese uzibeka ngokulandelana kwazo uqale ngehlobo.

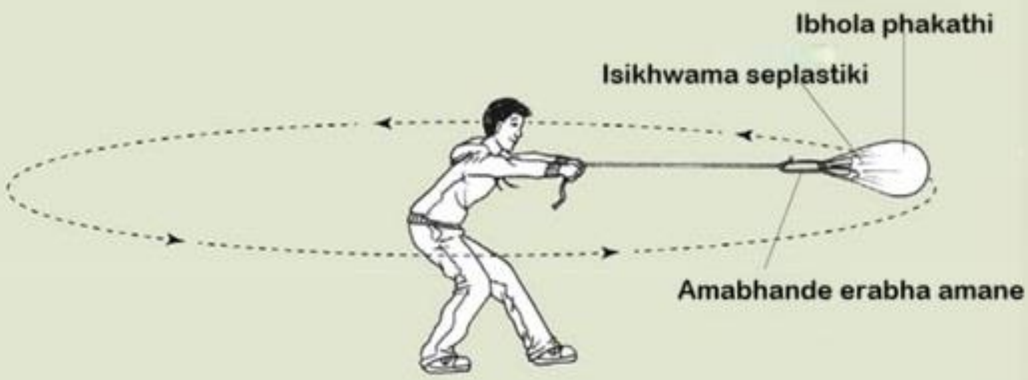
I-EKHTHIVITHII: Yenza imodeli yoMhlaba ojikeleza iLanga

OKUDINGAYO:

- intambo eqinile cishe engamamitha ama-5 ubude
- ibhola esikhwameni seplastiki
- amabhande erabha awugqinsi amane

IMIYALELO:

1. Joyina isikhwama entanjeni, ngamabhande erabha amane.
2. Umuntu othile kufanele agijime nebhola esikhwameni ukuze akusize ulithole ligijima.
3. Bese ushwiba ibhola ulizungeza ngokushesha, ekugcineni kwentambo. Bonke abanye abafundi kufanele babheke isikhwama seplastiki ngokucophelela ukuze babone ukuthi amabhande erabha ayanwebeka yini.
4. Ubona umfundi eshwiba ibhola ezungeza yena. Umfundi umele iLanga kanti ibhola limele uMhlaba.Uma ubhekisisa amabhande erabha, uyabona ukuthi ibhola lidonsa umfundi, kanti umfundi udonsa ibhola.
5. Shintshanani ngokushwiba ibhola; yizwa ukuthi udinga ukudonsa kanzima kangakananiibhola ukuze liqhubeke lizungeza.



Ibhola lizungeza ngomgudu wokuzungeza.

IMIBUZO:

1. Uzwani njengoba ushwiba ibhola?

2. Uma ibhola elisesikhwameni salo lingezwa, lingezwani?

3. Uma intambo inganqamuka, ibhola lingaqhubeka libheke ngakuphi? Khomba ngesandla sakho ukukhombisa impendulo yakho.

4. Kungani ungaboni indilinga esithombeni esingenhla? Ingabe ibhola lihamba ngomgudu oyindilinga ngempela uma ulishwiba?

5. Ibhola limele uMhlaba. Ulishwiba ngokushesha okukhulu, kodwa udinga isikhathi esingakanani ngempela ukuthi uMhlaba uhambe uzungeze iLanga?

UTHI BEWAZI?

Njalo eminyakeni emi-4 siba nonyaka obizwa ngokuthi i-leap year. Yilapho kungezwa khona ngosuku mhlaka 29 February. Unyaka olandelayo we-leap ungezi-2028, 2032,

Iplanethi enguMhlaba izungeza iLanga ngama-365¼ wezinsuku bese lokho sikubiza ngonyaka owodwa. Njengoba uMhlaba uqhubeka uzungeza iLanga, sinezinkathi ezine zonyaka: ihlobo, ikwindla, ubusika nentwasahlobo, bese ihlobo liyabuya futhi.

Manje eMkhathini, uMhlaba ulokhu uzungeza iLanga ngesivinini esingamakhilomitha angaphezu kwenkilungwane eyi-100 (100 000) ngehora. Kodwa akukho ntambo edonsa uMhlaba, Ngabe yini pho edonsa uMhlaba?

Indonselaphansi yenza iLanga noMhlaba kudonsane.

Akukho ntambo emkhathini phakathi koMhlaba neLanga! ILanga lidonsa uMhlaba kanti uMhlaba udonsa iLanga ngenxa yendonselaphansi.

Ukudonsa kunamandla kangangokuthi kuzwakala ebangeni elingamakhilomitha ayizigidi eziyi-150! Njengentambo, indonselaphansi igcina uMhlaba uhamba emzileni wawo uzungeze iLanga, unyaka nonyaka.

3.3 UMhlaba kanye namanye amaplanethi

AMAGAMA AMASHA

- amaplanethi
- umzila wokuzungeza
- ukuzungeza uhlelo lwelanga nokulizungezile

Ezinye zezinto ezikhanyayo esizibona esibhakabhakeni ebusuku azizona izinkanyezi, kodwa amaplanethi. I-Venus iyiplanethi elula ukuyithola ngoba inkulu futhi iyakhanya. Ungayithola kusihlwa ngemva nje kokushona kwelanga, noma ekuseni ngaphambi nje kokuba iLanga liphume. Amagama ase-Afrika e-Venus amanye awo yilawa *iKhwezi* kanye *neNaledi ya masa.*

Singabona iplanethi iVenus emva kokushona kwelanga.

Umehluko phakathi kwezinkanyezi namaplanethi

Izinkanyezi zingamabhola esisi esishisa kakhulu futhi zizenzela ukukhanya kwazo. Amaplanethi awakwenzi ukukhanya kwawo; abonakaliswa ukukhanya okuvela eLangeni. Amaplanethi aqhelelene noMhlaba kodwa izinkanyezi zona ziqhelelene kakhulu.

I-EKHTHIVITHI: Umehluko phakathi kwezinkanyezi namaplanethi

IMIYALELO:

1. Qedela ithebula.
2. Khetha imisho ebhokisini elingezansi bese uyibhala ngaphansi isihloko esithi "Amaplanethi".

Khetha umusho ongcono kakhulu ongawubhala ethebulini

- Amaplanethi azungeza iLanga lethu.
- Amaplanethi awekho kude njengezinkanyezi.
- Kubonakala kuphela amanye amaplanethi ayisi-7 ohlelweni lwelanga nokulizungezile.
- Amaplanethi awakwenzi ukukhanya kwawo; akhombisa ukukhanya okuvela eLangeni.

Izinkanyezi	Amaplanethi
Izinkanyezi amabhola ashisayo esisi akhanya ngokugqamile futhi akhiphe ukukhanya nokushisa	
Singabona izinkulungwane zezigidi zezinkanyezi ngesibonisakude.	
Izinkanyezi zikude kakhulu nathi	
Izinkanyezi azilizungezi iLanga.	

Kunamaplanethi ayisishiyagalombili ahamba emizileni ehlukene azungeza iLanga

I-Mars ingenye iplanethi ongayibona ngobusuku obuthile. Inombala osawolintshi.

Amagama amaplanethi yilawa:

- i-Mercury
- iKhwezi (Venus)
- uMhlaba (Earth)
- i-Mars
- i-Jupiter
- iSaturn
- i-Uranus
- iNeptune

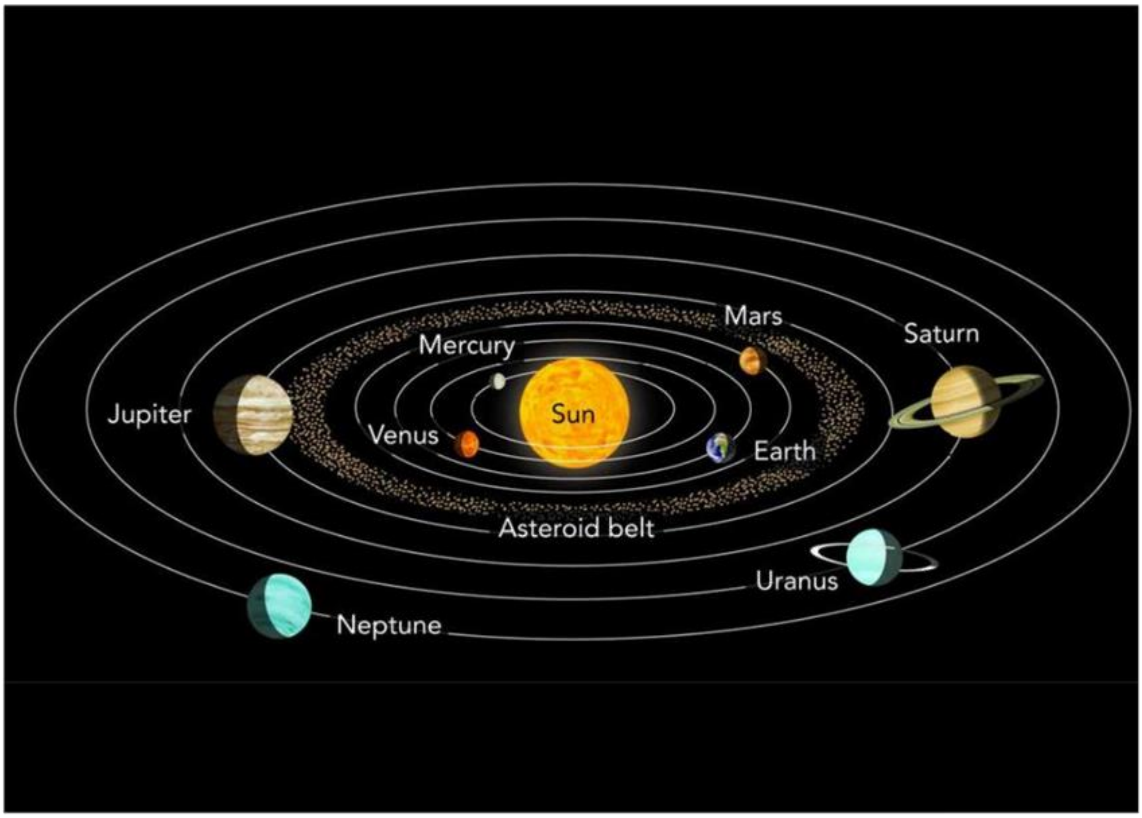
Sasivame ukubiza i-Pluto ngeplanethi, kodwa akusenjalo manje. OSosayensi sebanquma ukuthi iPluto akuseyona ngempela iplanethi, sekukhona amaplanethi ayi-8 kuphela. I-Pluto manje isiyilokho okwaziwa ngokuthi "Iplanethimbumbulu". Isinqumo sokuhlukanisa kabusha i-Pluto ibe yinkulumompikiswano ende Phakathi kososayensi. Amanye amaqiniso enza ososayensi banqume ukuthi i-Pluto akuyona iplanethi ukuthi incane kakhulu kunanoma yimaphi amanye amaplanethi, ayinawo umzila ojwayelekile ozungeza iLanga.

Nali ithiphu! Ukuze ukhumbule amagama amaplanethi, yisho lokhu Imvumelwano: **M**ama **V**ela **E**windini **M**anje si**J**oyina **S**onke **U**nganqeni **N**awe:

Imvumelwano	**Amaplanethi**
Mama	Mercury
Vela	Venus
Ewindini	uMhlaba
Manje	Mars
Joyina	Jupiter
Sonke	Saturn
Unganqeni	Uranus
Nawe	Neptune

Amaplanethi wonke azungeza iLanga ngemigudu yemizungezo.

Imizila yemizungezo ikhonjisiwe kumdwebo ongezansi. ILanga liyinkanyezi emaphakathi ohlelweni lweLanga nokulizungezile.



Umdwebo wamaplanethi azungeza iLanga. Amaplanethi akude kakhulu kunalokho okubona lapha.

ILanga namaplanethi abizwa ngokuthi iLanga nokulizungezile. Uhlelo luyiqoqo lezingxenye ezisebenza ndawonye noma ezidudulana futhi zidonsane. ILanga nawo wonke amaplanethi ayadonsana njengoba amaplanethi ezungeza iLanga.

I-EKHTHIVITHI: Amaplanethi eLanga nokulizungezile

IMIYALELO:

1. Bheka umdwebo weLanga nokulizungezile futhi.
2. Phendula imibuzo.

IMIBUZO:

1. Kungani amaplanethi wonke eqhubeka ehamba emizileni ezungeza Langa?

2. Iyiphi iplanethi eseduze neLanga?

3. Ingabe iVenus noma uMhlaba oseduze neLanga?

4. Bhala amagama amaplanethi ngokulandelana kwawo, uqale kuleyo eseduze neLanga.

5. Ucabanga ukuthi iyiphi iplanethi ebanda kakhulu?

6. Yisiphi isizathu esenza ukuthi iplanethi ibande kakhulu?

3.3 ILanga nempilo

Kunamaplanethi ayisishiyagalombili ohlelweni lweLanga nokulizungezile. Abantu bavame ukuzibuza ukuthi ingabe amanye amaplanethi anazo yini izidalwa ezibizwa ngokuthi ama-aliyeni ahlala kuwo. Mhlawumbe uke wawabona amafilimu akhuluma ngezidalwa zakwamanye amaplanethi. Kulesi sigaba ufunda ukuthi kungani uMhlaba kuwukuphela kweplanethi abantu abangaphila kuyo. Sidinga ukudla futhi ukudla kuvela ezitshalweni.

UPHENYO: Kwenzekani esitshalweni esikhula ngaphandle kokukhanya?

INHLOSO (Yini ofuna ukuyithola?):

UKUHLAWUMBISELA (Ucabanga ukuthi kuzokwenzekani?):

AMA-APHARETHASI (Ozokudinga):

- isitshalo sikabhontshisi esikhulayo ebhodweni
- ibhokisi elincane elinesivalo ongalivala
- ibhodlela lamanzi lesitshalo

INDLELA YOKWENZA:

1. Isitshalo sikabhontshisi kumele sikhule kahle. Beka isitshalo endaweni lapho sithola ukukhanya nalapho ungasibuka khona nsuku zonke.
2. Sika isivalo sebhokisi bese ubeka ibhokisi phezu kwegatsha elilodwa elinamaqabunga. Ibhokisi kufanele libe mnyama ngaphakathi.
3. Chela izitshalo ngamanzi angangesipuni nsuku zonke futhi ugcine isitshalo sinempilo
4. Ngemva kwesonto, vula ibhokisi bese ubheka amaqabunga akhona akhula ngaphakathi.
5. Qhathanisa amaqabunga akhula ebumnyameni namaqabunga akhula ekukhanyeni.

Mboza amanye amaqabunga ngebhokisi elinncane uqinisekise ukuthi ukukhanya akufinyeleli kuwo.

IMIPHUMELA (Okubonile):

Dweba imidwebo emibili yesitshalo. Omunye umdwebo kufanele ube owamaqabunga ayembozwe ibhokisini, omunye umdwebo kufanele ube owamaqabunga ayevezwe elangeni. Nikeza imidwebo yakho isihloko namalebula.

ISIPHETHO (Okufundile):

Bhala isiphetho salolu phenyo ngezansi.

Ungalwenza kanjani lolu phenyo kangcono?

Ukukhanya okuvela eLangeni kusiza izitshalo eziseMhlabeni ukuthi zikhule. Bheka isithombe esingezansi. Wonke amaqabunga avela esitshalweni esisodwa.

Amahlamvu omabili aphuma esitshalweni esisodwa. Amaqabunga ehlamvu eliphezulu akhula ekukhanyeni, kanti amaqabunga ehlamvu elingezansi akhula endawei engenakho ukukhanya.

IMIBUZO

1. Uyini umehluko phakathi kwamaqabunga egatsha ngalinye? Bhala imisho emibili ngamaqabunga. Qala kanje "Amaqabunga phezulu esithombeni . . ."

2. Kungani amaqabunga ebukeka ehlukile? Bhala isizathu esisodwa esenza amaqabunga abukeke ehlukile.

I-EKHTHIVITHI: Kungani izitshalo eziningi ziyeka ukukhula ebusika?

Ebusika nasehlobo, utshani, izihlahla nezinye izitshalo ezikuzungezile zibukeka zehlukile.

IMIYALELO:

1. Qedela leli thebula. Izimpendulo ngaphansi kwesihloko "ihlobo" usuwenzelwe.

Imibuzo	**Ihlobo**	**Ikwindla**	**Ubusika**	**Intwasahlobo**
Yiziphi izinyanga zonyaka esinalezi zikhathi zonyaka?	uLwezu usuyophela, uZibandlela, uMasingane, uNhlolanja			

Imibuzo	Ihlobo	Ikwindla	Ubusika	Intwasahlobo
Ingabe izinsuku eziningi ziyabanda, ziphole, zifudumele noma zishisa?	Izinsuku eziningi ziyashisa			
Liphakeme kangakanani iLanga phakathi nosuku?	Cishe phezu kwamakhanda ethu.			
Bungakanani ubusuku? Bufushane, binde noma buphakathi nendawo?	Bufushane			
Kwenzekani ezitshalweni ngalesi sikhathi sonyaka?	Izitshalo zikhula kahle			
Dweba isithombe ukukhombisa isikhathi sonyaka				

IMIBUZO:

1. Ebusika, izitshalo ziyayeka ukukhula. Izitshalo zilahlekelwa amaqabunga azo noma zife. Ucabanga ukuthi kungani lokhu kwenzeka?

2. Entwasahlobo, izitshalo ziqala ukukhula futhi. Ucabanga ukuthi kungani lokhu kwenzeka?

3. Uyakhumbula ufunda eThemini yokuqala mayelana nokuthi isitshalo sidingani ukuze sikhule? Bhala izidingo izitshalo ngezansi.

I-EKHTHIVITHI: ILanga likuhlinzeka kanjani ngemfudumalo nemvula eNingizimu Afrika?

IMIYALELO:

1. Bheka isithombe soMhlaba ngezansi. Usuke wasibona ngaphambili kulencwadi.
2. Phendula imibuzo ngalesi sithombe.

Lena yiplanethi uMhlaba; lesi sithombe sithathwe kumkhumbimkhathi kude noMhlaba.

IMIBUZO:

1. Kusemini noma kusebusuku eNingizimu Afrika?

---

2. Ingabe liguqubele noma libalele eNingizimu Afrika?

---

3. Imvula ivelaphi, ukunikeza izitshalo, izilwane kanye nabantu amanzi? Bhala imisho emibili noma emithathu ngalokhu.

Ama-Thunderbolt Kids asanda kufunda ngoMhlaba nokuthi iLanga liwuhlinzeka ngani uMhlaba. USophie wayehlezi ngemva kokufunda ezibuza ukuthi akhona yini amanye amaplanethi afana noMhlaba lapho abantu abangahlala khona.

UMBUZO

Ucabanga ukuthi abantu bangaphila kwamanye amaplanethi? Nikeza isizathu sempendulo yakho.

UMhlaba iyona planethi kuphela ohlelweni lweLanga nokulizungezile enezingakushisa esingaphila kulo; akushisi kakhulu futhi akubanda kakhulu. UMhlaba usebangeni elifanele ukusuka eLangeni ukuze ube nezingakushisa elifanelekile elisekela ukuphila.

IMIBUZO

1. Amanye amaplanethi asondelene kakhulu neLanga futhi ashisa kakhulu ukuthi kungakwazi ukuphila noma yini. Amaplanethi amabili ashisa kakhulu yilawa:

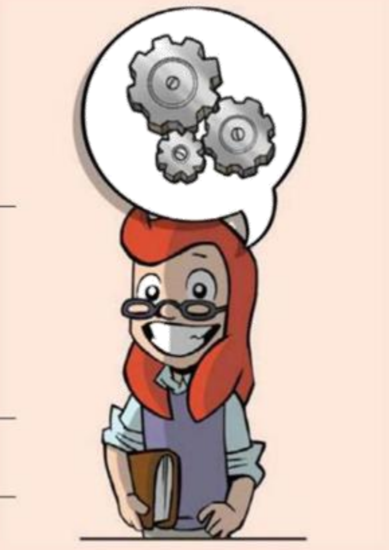
2. Iningi lamaplanethi akude kakhulu neLanga kangangokuthi abanda kakhulu. Abanda kangangokuthi abantu abakwazanga ukuhlala kuwo. Izibonelo ezinhlanu zamaplanethi abandayo yilawa:

IMIQONDO EMQOKA

- Umhlaba uzungeza iLanga
- Indlela yoMhlaba ibizwa ngokuthi umzila wokuzungeza woMhlaba.
- Sichaze isikhathi esithathwa uMhlaba ukuqeda ukuzungeza okukodwa,
  unyaka.
- Ezinye zezinto ezikhanyayo esizibona ebusuku esibhakabhakeni zingamaplanethi, hhayi izinkanyezi.
- Umhlaba ungomunye wamaplanethi ayisishiyagalombili ohlelweni lwethu leLanga nokulizungezile.
- UMhlaba uwukuphela kweplanethi esingaphila kuyo.

UKUBUYEKEZWA:

1. Yini ephakathi nendawo ohlelweni lweLanga nokulizungezile?



2. Yisho amaplanethi a-8 ohlelweni lweLanga nokulizungezile.

3. Yini edingwa izitshalo etholakala eLangeni eyenza zikhule?

4. Injani umumo womzila yoMhlaba ezungeza iLanga?

5. Yini igama lendlela yoMhlaba ezungeza iLanga?

6. Kungani uMhlaba uzungeza iLanga?

4 UHlelo lwamarokhethi

IMIBUZO ESEMQOKA

- Abantu bangahamba kanjani emkhathini?
- Ngenza kanjani i-rocket yami ihambe ngokushesha?
- Ngingayenza kanjani i-rocket yami iqonde?

4.1 Izingane zama-Thunderbolt zidinga irokhethi

AMAGAMA AMASHA

- iziqhumane
- isisi
- rockethi
- kafushane

UJojo, uSophie, uFarrah noTom babukele iziqhumane edilini lomculo. Amarokhethi adubula phezulu esibhakabhakeni esimnyama ebusuku abese eqhuma athumele izihlansi.

Iziqhumane emcimbini womculo.

UJojo ubuza abangani bakhe, "Ingabe enye yalawo marokhethi ingaya eNyangeni?".
UTom uyaphendula, "Cha, iNyanga iqhele ngamakhilomitha ayizinkulungwane ezi-384 (384 000)- lokho kukude kakhulu!"

U-Farrah uthi, "Angiwafuni amarokhethi eNyangeni - yinhle kakhulu ngendlela eyiyo."

USophie ube eseqinisekisa, "Kodwa abantu sebeke baya KHONA! Basebenzise irokhethi ukuya lapho. Bahambahamba enyangeni babuya namatshe eNyanga."

Izingane ze-Thunderbolts zihlala isikhashana eside, zigqolozele iziqhumane ezinhle ezinenyanga ngemuva.

U-Farrah wabe esethi, "Ngibone ividiyo yosomkhathi eNyangeni.
Bagxuma kalula ngoba banesisindo esincane eNyangeni."

UJojo ube eseba nombono omuhle, "Woza, ake senze amarokhethi angamamodeli.
Sizokwenza sengathi sithumela umuntu eNyangeni!"

Wonke umuntu uyavuma noTom uyasho uthi, "Ngifuna usomkhathi omncane erokhethini yami - ngizobhala igama lami, uTom, kuye!"

Manje ama-Thunderbolt Kids afuna ukudizayna nokwenza amarokhethi. Amarokhethi abo azoba nemodeli encane yomuntu kuwo. Kufanele ubasize benze lokhu!

UMBUZO

Bhala phansi izinto ezimbili ozaziyo ngamarokhethi.

Manje sidinga ukubhala umyalelo wedizayni wephrojekthi yethu. Umyalelo wedzayni usitshela ngohlelo olufishane lwedizayni yakho. Ivamise ukuba mfishane impela.

UMBUZO

Bhala imisho emibili ngalokho ozokwenza. Lona umyalelo wedizayini.

4.2 Asebenza kanjani amarokhethi?

AMAGAMA AMASHA

- umlomo wombhobho
- phenya
- ukudizayna
- uhlelo
- ifoyli
- nweba

Izingane zama-Thunderbolt kumele zithole ezinye izinto ngaphambi kokuthi zidizayne irokhethi. Kulesi sigaba, ama-Thunderbolt Kids azophenya ngamarokhethi. Kweze-Thekhnoloji, umdizayni kufanele athole ukuthi yini abantu asebeyenzile, futhi athole ukuthi lezo zinto zisebenza kanjani. Sisebenzisa igama elithi "phenya", okusho ukuthi thola.

USophie ufunda ngamarokhethi akhiwe esikhathini esidlule. Uyaphenya!

Phenya ngamarokhethi aya eNyangeni

Abantu baye basebenzisa amarokhethi ukuya emkhathini nokuya enyangeni. Ngo-1969, i-rocket ebizwa ngokuthi u-Apollo 11 yathatha amadoda amathathu aya eNyangeni okokuqala. Vula ikhasi elisemuva lalencwadini ethi "Amaqiniso eNyanga"esahlukweni seNyanga bese uthola izithombe futhi ufunda ngohambo.

IMIBUZO

1.Ingabe irokhethi lonke laya eNyangeni?

---

2. Iyiphi ingxenye yerokhethi eyaya eNyangeni?

---

3. Umkhumbimkhathi kwadingeka ukuthi uhambe ibanga elingakanani ukuze ufinyelele eNyangeni?

Phenya izinhlelo zamarokhethi

Uma sesisuka kwingaphezulu le-athmosfiye yoMhlaba, awukho umoya phakathi kwalapho naseNyangani. Amaphiko ezindiza asebenza kuphela lapho ehamba emoyeni.

IMIBUZO

Ingabe indiza ingandiza iye eNyangeni? Nikeza isizathu Sempendulo yakho.

Ngakho-ke amarokhethi awakwazi ukuhamba emkhathini ngendlela izindiza ezihamba ngayo emoyeni oseMhlabeni. Ngakho-ke amarokhethi adinga ukuhamba ngezinye izindlela. Ake sibheke ukwenza imodeli elula ye-rocket ukuze sibone ukuthi ihamba kanjani.

I-EKHTHIVITHI: Yenza irokhethi ngomentshisi

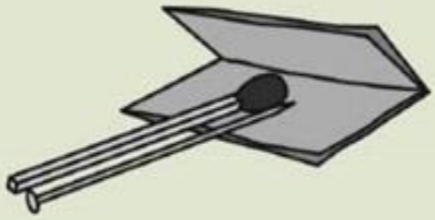
OKUDINGAYO:

- ibhokisi likamentshisi
- onxande abane be-aluminium foyli, 4 cm ngo 8 cm
- uphini
- iphepha kliphi

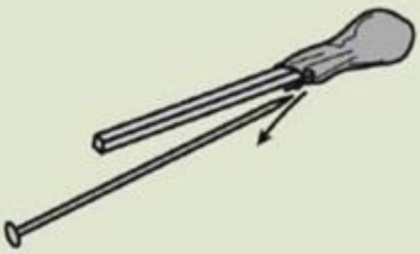
IMIYALELO:

1. Beka umentshisi kwifoyli bese ubeka uphini eduze komentshisi.

2. Goqa ifoyli uhlanganise uphini nekhanda likamentshisi.



3. Donsa uphini. Lokhu kushiya ishubhu elincane ukuze kuphume isisi.

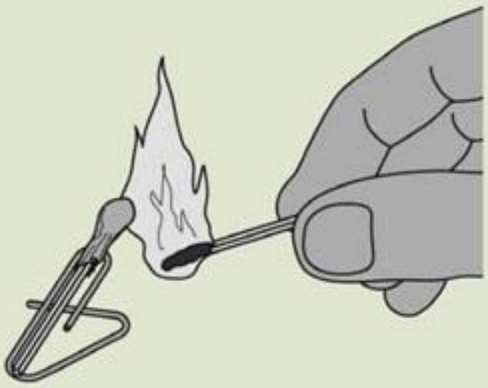


4. Manje usunerokhethi. Isilungele ukusuka. Okudingayo manje isakhiwo sokusuka.

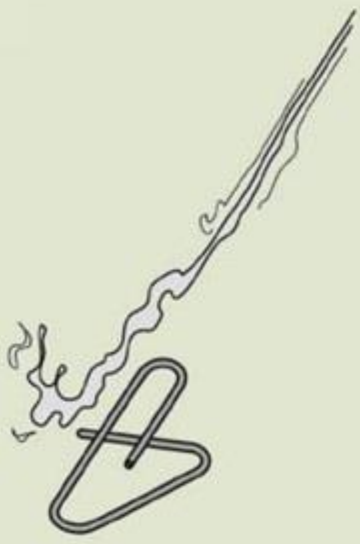
5. Gobisa isiqeshana sephephakliphu ukuze wenze isakhiwo njengoba ubona esithombeni.

6. Faka irokhethi lakho kwisakhiwo sokusuka. Qiniseka ukuthi irokhethi ikhomba kude nabantu.

7. Qhwiza omunye umentshisi ushisise ikhanda lerokhethi.



8. Bheka ukuthi kwenzekani!



IMIBUZO:

1. Irokhethi lidinga ifyuweli. Ifyuweli igcina i-eneji (Khumbula ukuthi sifundile ngokugcinwa kwe-eneji eThemini yesithathu). Igcinwekuphi i-eneji kulerokhethi?

Ngakho-ke, yini esiyifundile kule modeli encane yerokhethi esebenzisa uthi lukamentshisi? Lapho ikhanda likamentshisi lisha, likhipha isisi esishisayo. Isisi esishisayo sizama ukwanda nxazonke. Ukwanda kuchaza ukuthatha indawo eyengeziwe.

Isisi esandayo sibheke ezansi siphuma ngemlomo wombhobho ongemuva kwerokhethi. Isisi asishisayo siphuma ngomfutho emlonyeni wombhobho lokhu kuholela ekutheni irokhethi ididuleke iye phezulu.

UMBUZO

Yenza umdwebo werokhethi ekhuphukayo. Engeza lamalebula emdwebeni wakho: ikhala lerokhethi; umsila werokhethi, umlomo wombhobho, isisi esishisayo esiphumayo.

Irokhethi ikhuphukela phezulu ngoba isisi esishisayo sidubula sibheke phansi emlonyeni. Uma isisi sehla ngokushesha nerokhethi likhuphuka ngokushesha.

Uma umlomo wombhobho umkhulu kakhulu, isisi siphuma kalula ngakho asidubuli kakhulu. Uma umlomo wombhobho umncane kakhulu, isisi asikwazi ukuphuma ngokushesha. Ngakho ke yimuphi umumo ogcono kakhulu womlomo? Ungazama izinhlobo zemimo yombhobho ehlukene yerokhethi yakho yomentshisi ukuze uthole ukuthi yimuphi osebenza kahle kakhulu.

UMBUZO

Yini oyifundile kulolu phenyo?

____

____

____

Phenya ngamarokhethi ebhaluni

Wake waqhumisa ibhaluni wabe usulidedela. Landiza kanjani? Ingabe lahamba ngomugqa oqondile? Cishe cha! Cishe landizela yonke indawo! Lokhu akulilungele irokhethi. Singenza kanjani ukuze lindize liqonde?

Nginombono wokwenza ibhaluni lihambe liqonde! Bheka kumsebenzi olandelayo.

UTHI BEWAZI?

Uma uhlola into izikhathi eziningana uphinde ushintshe ukuze uthole isisombululo, lokhu kubizwa ngokuthi ukuhlola nge "sivivinyo nephutha".

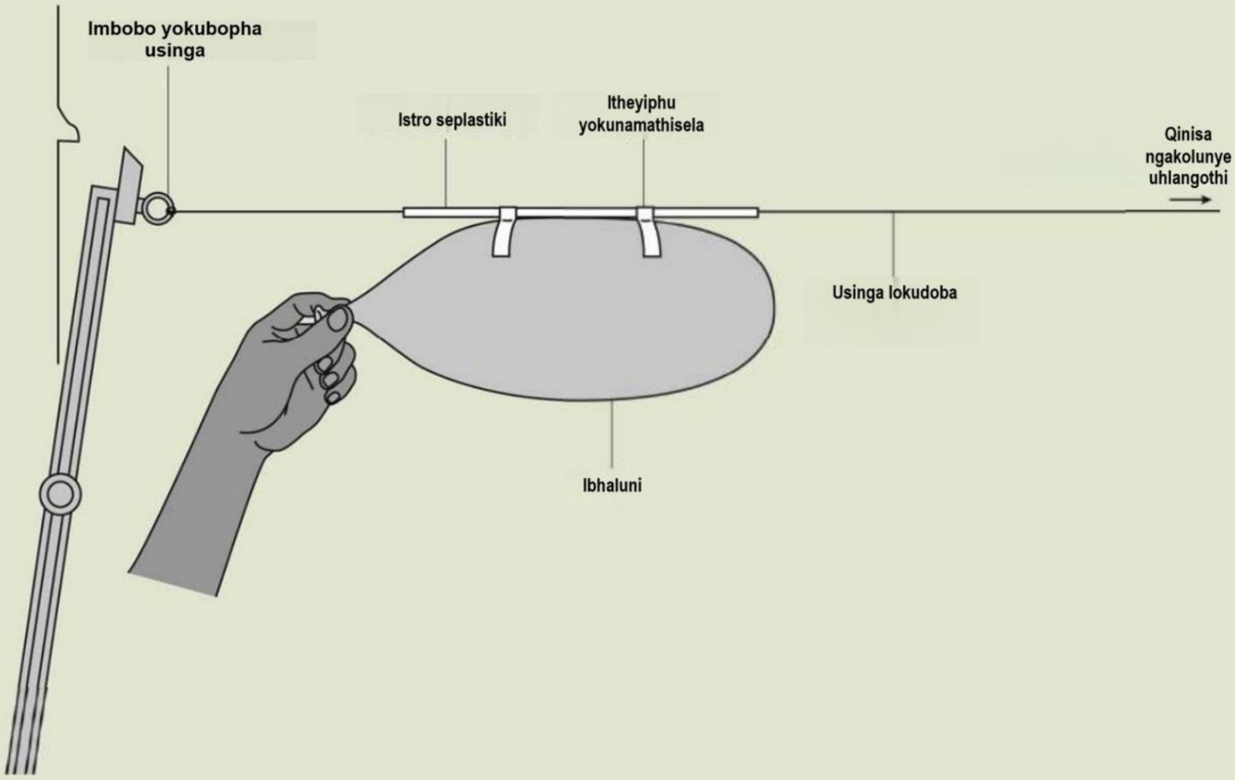
I-EKHTHIVITHI: Siza ibhaluni ukuthi indize liqonde

OKUDINGAYO:

- amabhaluni ama-2
- usinga lokudoba, olucishe lube ngamamitha ayi-10 ubude
- I-stro seplastiki
- itheyiphu yokunamathiselayo

IMIYALELO:

1. Bophela usinga lokudoba ohlangothini olulodwa lwegumbi.
2. Faka omunye umkhawulo wosinga lokudoba kwi-stro seplastiki.
3. Manje fasa usinga lokudoba ekubambeni kwisibambo sefastela. Hambisa ifastela ukuze usinga lokudoba luqine futhi luqonde.
4. Futha ibhaluni libe umumo wesinkwa bese usebenzisa itheyiphu enamathiselayo ukubophela ibhaluni kwi-stro. Ukubona lokhu kumdwebo ongezansi.



Ludonse usinga lokudoba luqine.

5. Dedela ibhaluni lihambe! Ibhaluni lihamba liqonde ngqo osingeni lokudoba.

6. Manje lifuthe ibhaluni lize libe likhulu njengebhola likanobhutshuzwayo. Lidedele lihambe.

7. Lifuthe ibhaluni libe imimo ehlukahlukene. Ungasebenzisa amahlandla okuphefumula uma ufutha ibhaluni njenge-veriyebuli, isibonelo, ukuphefumula oku-3, ukuphefumula okungu-5, ukuphefumula okungu-7. Njalo uma udedela ibhaluni kufanele ukale ngerula ukuthi lihamba ibanga elingakanani osingeni lokudoba. Qopha imiphumela yakho ethebuleni elingezansi.

Umumo webhaluni (inani lokuphefumula okufuthwe ngalo)	Ibanga elihanjiwe(cm)

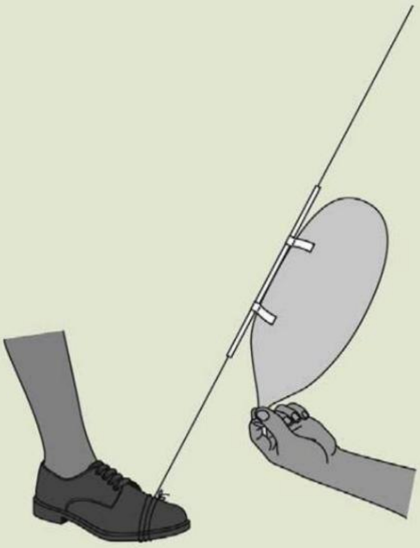
Sebenzisa lolu lwazi ukuze uhlele igrafu yomugqa. Inani lokuphefumula ovuthela ngalo ibhaluni yilokho okushintshayo, ngakho lokhu kuhambisana ne-eksisi evundlile engezansi, ebizwa ngokuthi i-x-eksisi. Ibanga elihanjwa yibhaluni emgqeni lincike ekutheni uphefumule kangaki uma ufutha ibhaluni. Ngakho-ke lokhu kuhambisana ne-eksisi eqondile ukuya phezulu, ebizwa nge-axis ka-y. Uthisha wakho uzokusiza futhi akubonise indlela yokuhlela iphuzu lokuqala. Sebenzisa isikhala esingezansi ukudweba igrafu yakho.

IMIBUZO:

1. Ingabe ibhaluni lihamba ngendlela ehlukile uma ulifutha libe ngumumo omncane kanye nomumo omkhulu?

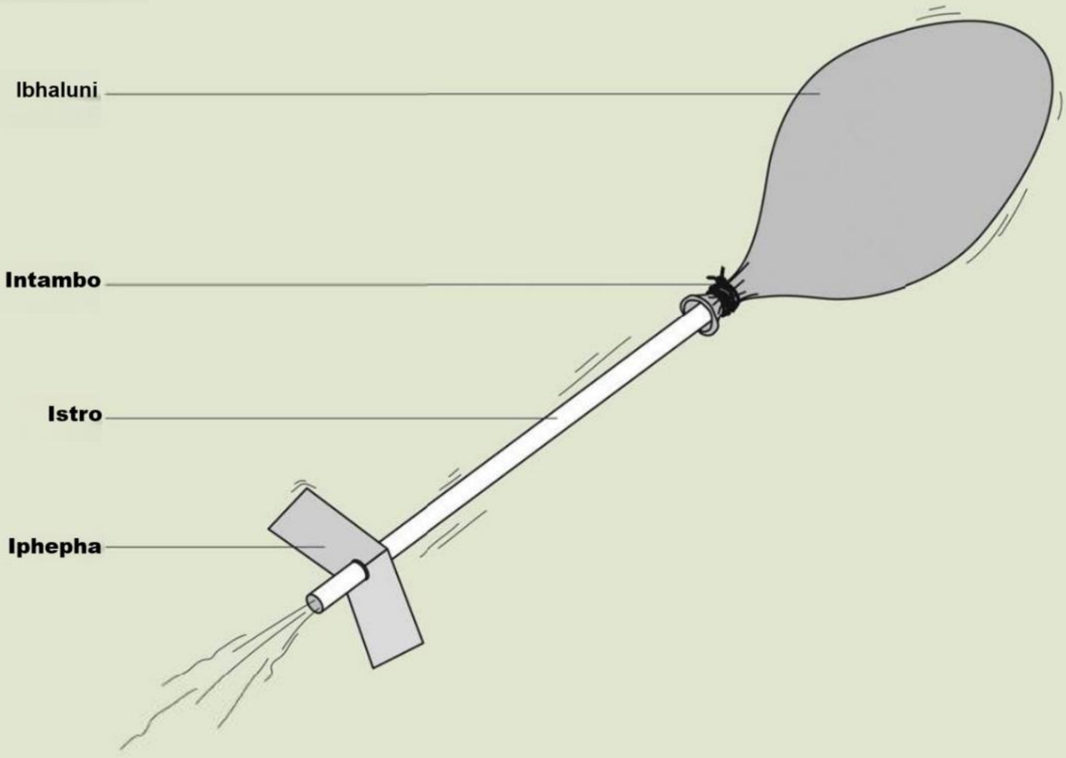
2. Uyini umehluko phakathi kwendlela ibhaluni elihamba ngayo lapho lifuthwe laba lincane nalapho lifuthwe laba likhulu?

3. Amarokhethi ahambisa osomkhathi eNyangeni aqonda phezulu, hhayi emaceleni. Cabanga ngendlela yokwenza irokhethi ikhuphuke futhi iqonde. Isithombe esingezansi sizokunikeza imibono.



Lindiza kahle kangakanani ibhaluni uma ulibambe ngosinga lokudoba kanje?

4. Isithombe esilandelayo sikhombisa enye indlela yokusiza ibhaluni liqonde. Yenza ibhaluni rocket futhi ubone ukuthi indizela ngqo.



Ingabe lolu hlelo luzokwenza i-rocket ihambe iqonde?

Kuze kube manje senze uphenyo oluthile ngamarokhethi futhi sacwaninga ukuthi ahamba futhi asebenza kanjani. Into yokugcina okumele uyenze ukwenza

awuphenye ngendawo esifuna ukuya kuyo - iNyanga!

I-EKHTHITHI: Phenya ngeNyanga

IMIYALELO:

1. Kumele uthole ulwazi ngeNyanga.
2. Ungafunda ngamaqiniso eNyanga eSahlukweni sesi-5.
3. Phendula imibuzo engezansi.

IMIBUZO:

1. Ikude kangakanani iNyanga eMhlabeni?

____

2. Ingabe iNyanga inawo umoya owuphefumulayo?

____

3. Ingabe ukhona yini umoya phakathi koMhlaba neNyanga?

____

4. Ingabe inyoni ingandiza isuka eMhlabeni iye eNyangeni? Nikeza isizathu sempendulo Yakho.

____

____

5. Ingabe ibhanoyi elikhulu lingandiza liye eNyangeni? Nikeza isizathu sempendulo yakho.

____

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____

____

Ukwenza imodeli yerokhethi

Izingane ze-Thunderbolt zizodizayna futhi zakhe amarokhethi. Ukudizayna kusho ukusebenzisa ulwazi lwakho nokucabangisisa ngento ozoyenza.

I-EKHTHIVITHI: Ukudizayna, ukwakha nokuhlola irokhethi

PHENYA:

Isinyathelo sokuqala njalo siwukuphenya. Sesivele senze uphenyo olumbalwa oluholela kulokhu. Buyela emuva uyobuyekeza lokho okufundile.

DIZAYNA:

Manje udinga ukusebenzisa ulwazi olutholile ukuze uqhamuke nedizayni yerokhethi lakho.

Irokhethi lakho inalezi zimpawu ezilandelayo:

- Irokhethi lakho kufanele lizihambele.
- Irokhethi lakho kufanele lihambe ngaphezu kwemitha eli-1, liye phezulu noma emaceleni.
- Irokhethi lakho kumele ithwale imodeli yephepha encane kasomkhathi.
- usomkhathi kufanele abe negama lothile oseqenjini.
- Kufanele ulakhe ekilasini irokhethi lakho, hhayi ekhaya.

Phendula le mibuzo:

1. Yini oyidingayo ukuze udizayne?

___

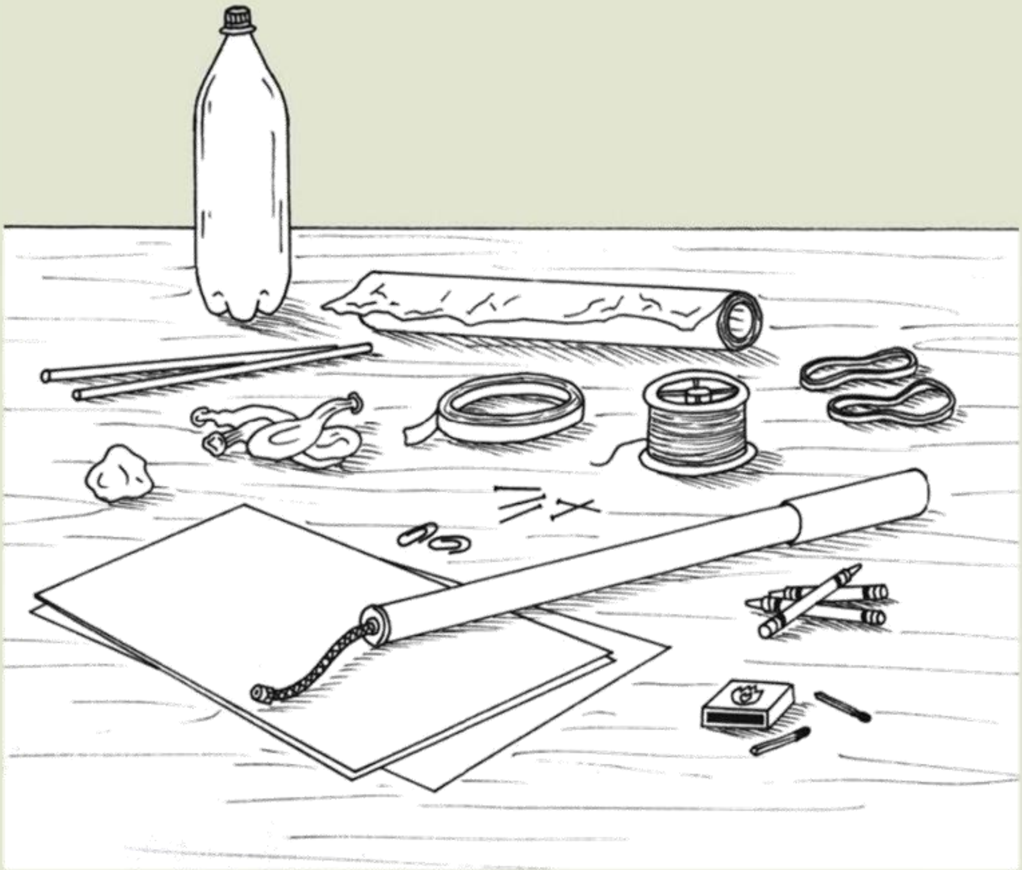
2. Kuzoba yini umumo nesikali serokhethi yakho?

___

___

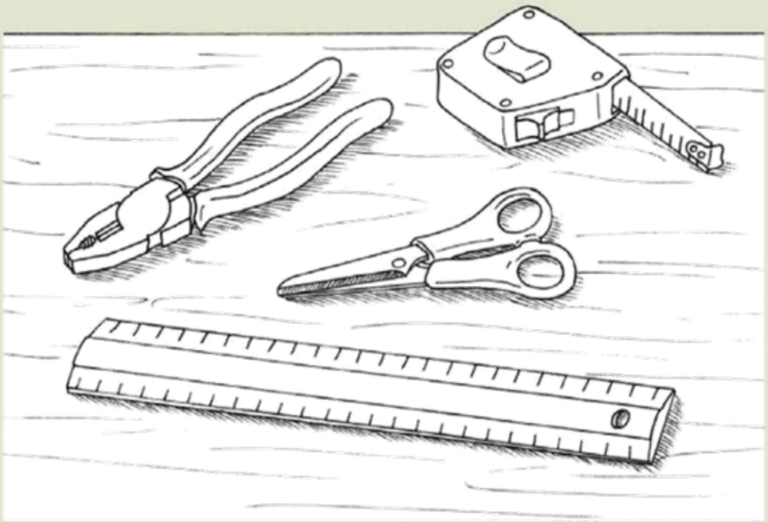
___

3. Yimaphi amamethiriyeli ozowasebenzisa ukwakha irokhethi lakho?
Yenza uhlu lwawo wonke amamethiriyeli ozowadinga.
Isithombe esingezansi sibonisa amanye amamethiriyeli ongawasebenzisa. Awudingi ukuwasebenzisa wonke futhi ungasebenzisa namanye amamethiriyeli angekho esithombeni.



Amamethiriyeli ongawasebenzisa ukwenza irokhethi lakho.

4. Yimaphi amathuluzi ozowadinga ukuze wenze irokhethi yakho?



Lawa amanye amathuluzi ongawasebenzisa.

5. Ingabe akhona yini eminye imininingwane (specifications) kanye nezithiyo ongazicabanga ngerokhethi lakho?

Manje udinga ukudweba amanye amadizayni erokhethi lakho. Sebenzisa izingcezu zephepha ukwenza amadizayni akho okuqala. Uma usujabule ngedizayni yakho, sebenzisa isikhala esingezansi ukuze udwebe idizayni wakho. Lebula umdwebo wakho ubonise ukuthi yiziphi izinto ozozisebenzisa ezingxenyeni ezihlukene.

Uma usulakha irokhethi lakho uzothola imibono engcono. Ngakho-ke buya ngemva kwalokho futhi udwebe engxenyeni engezansi yekhasi; khombisa lokho onqume ukukwenza ngempela.

YAKHA:

Manje yenza irokhethi lakho ekilasini! Kufanele wenze irokhethi lakho ngokomdwebo wakho futhi usebenzise amamethiriyeli owahlonzile.

Uma seniqedile ukwenza amarokhethi enu, wahloleni ukuze nibone ukuthi

ayaya ku 1m phezulu emoyeni. Khombisa ikilasi ukuthi irokhethi lakho lihamba kanjani. Ikilasi lizokubuza ukuthi lihamba ibanga elingakanani, futhi lizobheka usomkhathi omncane oyiphepha ogibele irokhethi. Ingabe ikhona yini irokhethi eya phezulu idlule u- 1 m?!

HLOLA:

Phendula umbuzo olandelayo kurokhethi oyakhile ngemuva kokuyihlola.

1. Irokhethi lakho iwatholephi amandla okunyakaza?

____

2. Ingabe irokhethi lakho linyakaze ngamasentimitha amangaki?

____

3. Ingabe irokhethi lakho lihambe ngendlela eqondile?

____

4. Yini obungayenza ukuze wenze irokhethi elingcono?

____

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XHUMANA:

Khumbula, ingxenye yokugcina yeNqubo Yokudizayna iwukuxhumana ngalokho okutholile kwabanye ukuze bafunde kulokho okwenzile.

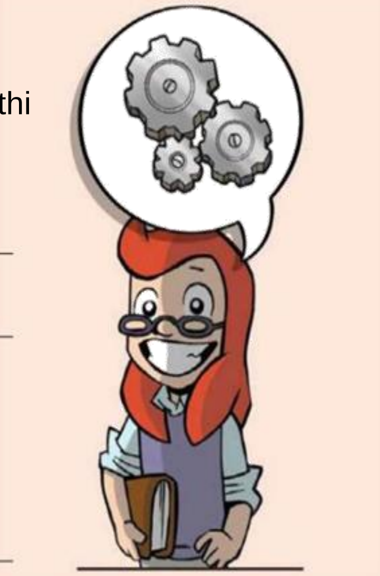
Ngifisa ngempela ukwazi ukuthi ufundeni mayelana nokudizayna amarokhethi!

Bhala isigaba ngezansi lapho utshela khona i-Thunderbolt Kids mayelana nerokhethi olakhile, ukuthi yini esebenzile nengazange isebenze, ukuze nayo ifunde kulokho okwenzile.

IMIQONDO EMQOKA

- Izindizamshini azikwazi ukundiza emkhathini ngenxa yokuthi awukho umoya
- Amarokhethi ayakwazi ukuhamba emkhathini
- Abantu basebenzise amarokhethi ukuya emkhathini nokuya eNyangeni
- Amarokhethi asebenzisa amandla agciniwe ukunyakaza

UKUBUYEKEZWA:



1. Asikwazi ukundizela eNyangeni ngendizamshini. Nikeza isizathu sokuthi kungani singeke sikwazi.

2. Chaza ukuthi irokhethi ihamba kanjani.

3. Nikeza isizathu sokuthi kungani umlomo wombhobho ongemuva kwerokhethi kufanele ube mncane.

4. Yimuphi unyaka umuntu wokuqala afinyelela ngawo eNyangeni esebenzisa irokhethi?

5 INyanga

IMIBUZO EBALULEKILE

- Kungani iNyanga ikhanya ngobunye ubusuku?
- Kungani iNyanga ishintsha ukuma kwayo?
- Singathola kanjani ukuthi ubuso benyanga bunjani?

5.1 Izimpawu zeNyanga

Khumbula ngesikhathi sibheka izimpawu zomhlaba. Manje, ake sibheke izimpawu zeNyanga. Asihambe sivakashele eNyangeni!

Seniwakhile vele amarokhethi ekilasini. Manje ake senze sengathi singosomkhathi kumarokhethi ethu futhi sizohlola iNyanga.

AMAGAMA AMASHA

- indawo engaphezulu
- isisindo
- khilomitha
- indonselaphansi
- imikhumbimkhathi
- osomkhathi
- ikhreytha
- isigqoko sokuzivikela
- umsakazo
- ingilazi yokuzivikela
- izingakushisa

INyanga iyibhola ledwala emkhathini

INyanga ihluke kakhulu eMhlabeni. INyanga nayo ayiyona iplanethi! Yakhiwe ngedwala futhi ihamba izungeza Umhlaba. Khumbula ukuthi sikhulume kanjani ngamaplanethi azungeza iLanga.

Inyanga yenza okufanayo - izungeza uMhlaba.

Inyanga egcwele

IMIBUZO

1. INyanga inomaka nezimo kuyo. Yibaphi labomaka, uma ucabanga?

2. Ungathola kanjani ukuthi bayini labomaka ebusweni beNyanga?

Amaqiniso ngeNyanga

- INyanga iyibanga elingamakhilomitha ayizinkulungwane ezingama- 384 (384 000) ukusuka eMhlabeni
- INyanga yenziwe ngedwala futhi ngaphezulu iyidwala nesihlabathi esimpunga.
- INyanga ayinawo umoya namanzi
- INyanga incane kunoMhlaba
- Abantu banesisindo esincane eNyangeni kunaseMhlabeni ngoba amandla adonsela phansi mancane eNyangeni.
- ILanga liqhele kakhulu eMhlabeni kunaseNyangeni.

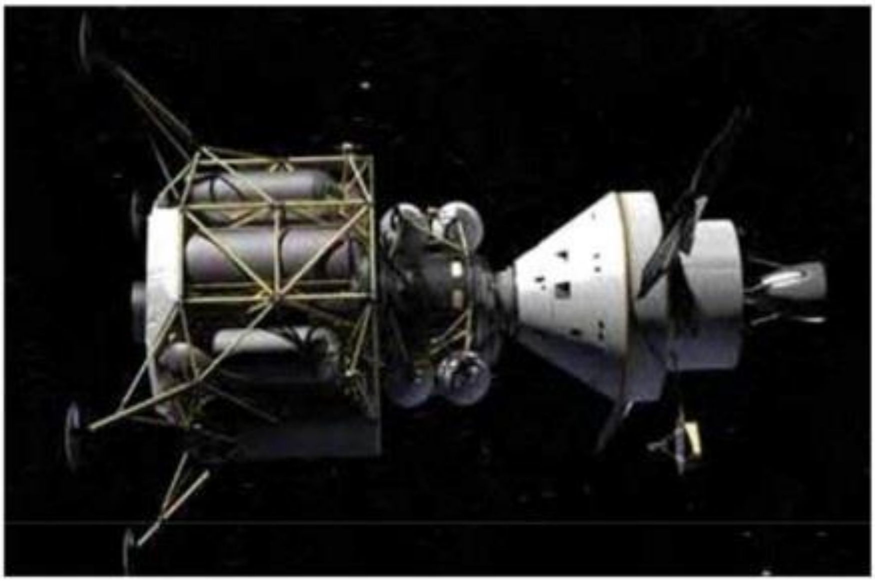
Ukuhlola iNyanga

Ngonyaka ka-1969, irokhethi oyibona esithombeni yathwala amadoda amathathu aya eNyangeni okokuqala. Irokhethi nomkhumbimkhathi kwakubizwa ngokuthi i-Apollo 11.

Lesi sithombe sibonisa i-rokhethi iqhunyiswa futhi ikhuphukela emkhathini. Irokhethi iphakeme njengebhilidi elinezitezi ezingu-30.

Ilangabi ngemuva yisisi esishisayo esiphuma emlonyeni wenozili. Amafu asohlangothini lwesithombe isisi ashaya phansi sidudule uthuli emaceleni. La madoda amathathu ayebizwa ngokuthi osomkhathi. Babesemkhumbinimkhathi omncane ekhaleni lerokhethi.

Irokhethi elikhulu lashisa yonke ifyuweli yalo liphindela eMhlabeni, lahlala olwandle. Kodwa umkhumbi-mkhathi omncane wazihambela wodwa waya eNyangeni, futhi osomkhathi babengaphakathi emkhumbinimkhathi.



Lona umkhumbi-mkhathi owaya eNyangeni futhi wafika wahlala lapho.

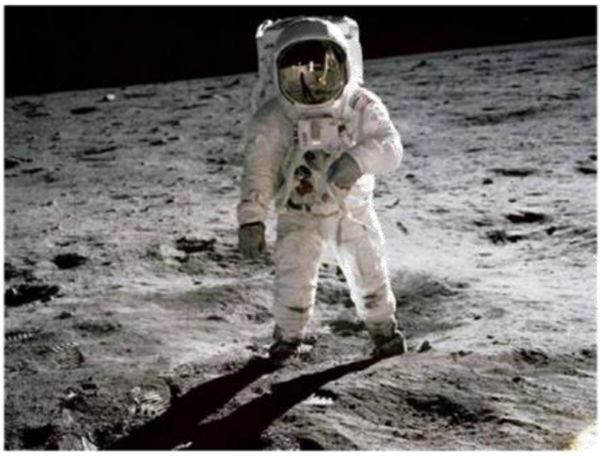
Ake sizicabange sengathi siphakathi kulelirokhethi!
Sihamba emkhathini ngamakhilomitha ayizi-5 800 ngehora ngalinye. Ngemva kohambo lwezinsuku ezintathu, siyafika eNyangeni. Siyabona ukuthi iNyanga iyindilinga, njengebhola. Siyabona ukuthi indawo engaphezulu ilukhuni, inezintaba namakhreytha amaningi.

Isafesi ingaphandle lento. Ungakwazi ukuhlikihla isandla sakho phezu kwedeski lakho. Ikhreytha imbobo edalwe into eshaya isuka phezulu. Uma uphonsa itshe esihlabathini, wenza ikhreytha esihlabathini.

Sitholani eNyangeni?

Funda le ndaba, noma ulalele ngenkathi uthisha wakho eyifunda ngokuzwakalayo:

Umkhumbimkhathi wehla kancane uye endaweni yeNyanga, uqhumisa ifu elikhulu lothuli. Awukho umoya eNyangeni, ngakho uthuli luhlehlela phansi ngokushesha. Sagqoka amasudi ethu asemkhathini.
Sinomoya emathangini esiwuphefumulayo, imisakazo yokuxhumana kanye nezigqoko zengilazi ezikhethekile zokuvikela amehlo ethu eLangeni.



Usomkhathi ogqoke isudu yakhe yasemkhathini ehamba eNyangeni.

Umhlabathi ongaphansi kwezinyawo zethu uyisihlabathi esimpunga, uthuli namatshe amancane.
Amakhreytha esiwabonile ayimigodi emikhulu ebusweni beNyanga.
Amadwala ahamba ngokushesha kakhulu emkhathini kwesinye isikhathi ashayeka eNyangeni. Ezindaweni lapho amatshe ashaya khona, enza imbobo eyisikokelezi yesihlabathi.

Isibhakabhaka simnyama, asiluhlaza okwesibhakabhaka. Singabona izinkanyezi kanye neLanga ngesikhathi esisodwa. ILanga liyakhanya, ligqame kakhulu kunaseMhlabeni, futhi siyajabula ngokuthi sinengilazi yokuzivikela kuzigqoko zethu.

Njengoba sihamba eNyangeni, izinga lokushisa lomhlabathi liyashisa kunamanzi abilayo. Kodwa uma sima emthunzini wedwala elikhulu noma umkhumbi-mkhathi, izinga lokushisa libanda kakhulu kuneqhwa. Izinga lokushisa lishintsha kakhulu ngoba iNyanga ayinawo umoya. EMhlabeni, umoya ugcina uMhlaba ungashisi kakhulu noma ugodole kakhulu.

I-EKHTHIVITHI: Ngingusomkhathi eNyangeni

IMIBUZO:

1. Kungani usomkhathi esithombeni egqoke imaski yengilazi evala ubuso bakhe bonke? Angafaka yini izibuko ezimnyama kuphela nje?

2. Uthwele isikhwama esikhulu emhlane. Cabanga ngezinto ezintathu ezisekhwameni. Ungakwazi ukuthola izimpendulo ngokuxoxa ngendaba.

3. Isihlabathi eNyangeni sibonakala sinombala okhanyayo. Kungani iNyanga isinikeza ukukhanya ebusuku?

4. Zenzele umdwebo eNyangeni. Bhala isihloko sesithombe sakho: Lesi sithombe singikhombisa eNyangeni. Bonisa isudi yokuzivikela oyigqokayo, bese ubhala amalebula ezingxenye zesudi yakho yokuzivikela.

Lona nguMhlaba obonakala ebusweni beNyanga.

5.2 Izigaba zeNyanga

AMAZWI AMASHA

- isigaba
- umumo
- ukuwohloka
- ukuncipha
- imodeli

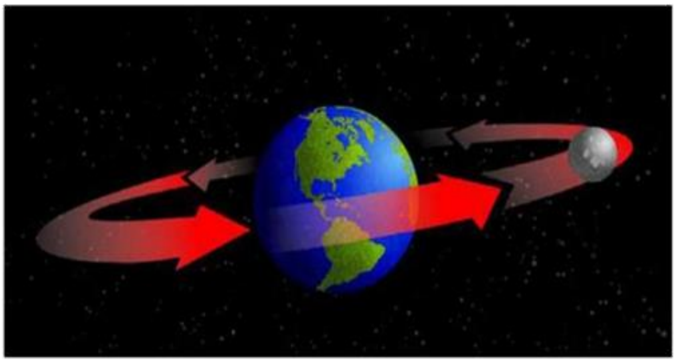
Isigaba yinkathi yesikhathi. Isibonelo, manje useSigabeni Esiphakathi esikoleni. Uma ususeSibangeni lesi-7 uzobe useSigabeni Esiphezulu.

Njengoba iNyanga izungeza uMhlaba kubonakala sengathi iNyanga ishintsha isimo sayo esibhakabhakeni. INyanga iyashintsha isuka ocwecweni oluncane iye kuyindingilizi egcwele noma idiski (inyanga egcwele) bese ihlehla iphinde ibe ucezwana oluncane futhi. Iyaye Ingabe isabonakala izinsuku ezimbalwa futhi. Lezi zinguquko ekubunjweni kweNyanga zibizwa ngokuthi izigaba zeNyanga.

Bheka umdwebo okhombisa zonke izigaba zeNyanga.

INyanga ihamba ngokuzungeza uMhlaba. INyanga ithatha cishe izinsuku ezingama-29 ½ ukuhamba yonke indawo futhi iphinde ibuyele

isikhundla esifanayo. Lobu bude besikhathi cishe inyanga eyodwa ngakho-ke kuthatha cishe inyanga eyodwa ukusuka eNyangeni egcwele kuya eNyangeni elandelayo egcwele.



INyanga izungeza uMhlaba kanye njalo ngezinsuku ezingama-29 ½

Kungani iNyanga ishintsha isimo phakathi nenyanga?

ILanga likhanya eNyangeni kodwa kuhlale kunengxenye yeNyanga iLanga elingakwazi ukufinyelela kuyo. Singabona ingxenye enokukhanya kwelanga kuyo, kodwa asikwazi ukubona ingxenye emnyama esethunzini.

I-EKHTHIVITHI: Yenza imodeli yoMhlaba, iLanga neNyanga

Le modeli izokusiza uqonde ukuthi kungani isimo seNyanga sishintsha phakathi nenyanga.

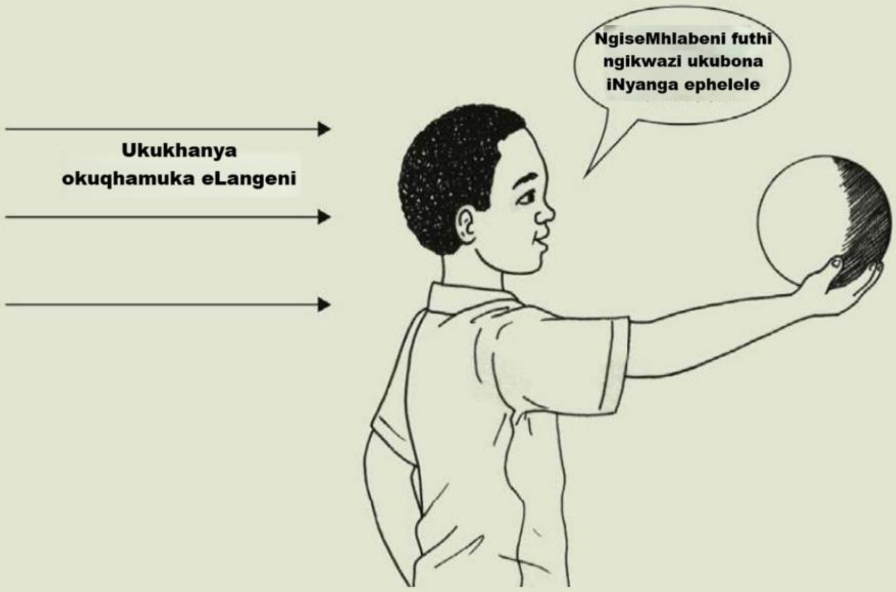
OKUDINGAYO:

- ibhola elincane elimelela inyanga
- usuku lapho ilanga libalele!

IMIYALELO:

1. Kumele wenze lo msebenzi ngaphandle, ekuseni kakhulu iLanga lingakaphumi.
2. Qala ngokufulathela iLanga.
3. Misa "iNyanga" yakho phambi kwakho, njengoba ubona esithombeni.

4.Ikhanda lakho limele uMhlaba, ikhala lakho limele i-Afrika. Ubheke e-Afrika. Isiphi Isigaba semodeli yeNyanga osibonayo?



Ungayibamba kanjani "iNyanga"uma ilanga ulifulathele.

5. Gcina ingalo yakho yeluliwe bese ushwibeka kuze kube imodeli iNyanga iphakathi kwakho neLanga. Manje ubona uhlangothi lwesithunzi kuphela "lweNyanga" yakho. Ubona iNyanga entsha.

6. Gcina ingalo yakho yeluliwe bese uhambisa "iNyanga" kwesokudla kuze kube ukukhanya kwelanga kukhanya kancane eceleni "kweNyanga".

7. Yimuphi umumo weNyanga onaso manje? Khomba izithombe ezisethebulani ezikhombisa izigaba zenyanga.

8. Jikisa umzimba wakho uye ngakwesokudla sakho kuze kube ingxenye yeNyanga ibe nokukhanya kuyo.

9. Yisiphi isimo osibonayo manje? Khomba izithombe kwithebula.

10. Fulathela iLanga, ukuze ubone ukukhanya ohlangothini lweNyanga. Lokhu kufana nezinsuku eziyi-14 ezidlulayo.

11. Yimuphi umumo weNyanga onaso manje? Khomba ku izithombe etafuleni.

12. Jikisa umzimba kakhulu uye ngakwesokudla sakho. Bonisa uthisha wakho ukuthi ungawuthola kanjani umumo ethebuleni. Lokhu kufana nezinsuku ezingama-21

IMIBUZO:

1. Ukube bekuyiNyanga entsha kusihlwa, bekuzothatha izinsuku ezingaki ukuze inyanga igcwale futhi?

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2. Kuzothatha izinsuku ezingaki ukuthi iNyanga ibe iNyanga entsha futhi?

I-EKHTHIVITHII: Ukubuka izigaba zeNyanga

OKUDINGAYO:

- Ipensela lokudweba
- Iphepha Lokurekhoda

IMIYALELO:

1. Bheka iNyanga ngesikhathi esifanayo njalo ebusuku, inyanga yonke.
2. Bhala usuku esikhaleni esifanele ethebuleni lokurekhoda ngezansi.
3. Yenza umdwebo womumo owubona njalo ebususku kwithebula ngezansi.
4. Bheka ukuthi ungakwazi yini ukuhlonza igama lesigaba seNyanga bese ulibhala esikhaleni esingezansi komdwebo wakho.
5. Uma ungakwazi ukubona iNyanga ngenxa yesimo sezulu esibi, bhala "Isimo sezulu esibi" esikhaleni.

IPHEPHA LOKUREKHODA

Iviki 1	Umsombuluko	uLwesibili	uLwesithathu	uLwesine	uLwesihlanu	uMgqibelo	iSonto
Umumo weNyanga							
Isigaba seNyanga							
Iviki 2	**Umsombuluko**	**uLwesibili**	**uLwesithathu**	**uLwesine**	**uLwesihlanu**	**uMgqibelo**	**iSonto**
Umumo weNyanga							
Isigaba seNyanga							
Iviki 3	**Umsombuluko**	**uLwesibili**	**uLwesithathu**	**uLwesine**	**uLwesihlanu**	**uMgqibelo**	**iSonto**
Umumo weNyanga							
Isigaba seNyanga							
Iviki 4	**Umsombuluko**	**uLwesibili**	**uLwesithathu**	**uLwesine**	**uLwesihlanu**	**uMgqibelo**	**iSonto**
Umumo weNyanga							
Isigaba seNyanga							

5.3 Izindaba ngeNyanga

Amasiko amaningi anezindaba ezahlukene nge Nyanga. Lezi zindaba zisitshela ngokubaluleka kweNyanga ezimpilweni zabantu.

Nazi ezinye Izindaba ngeNyanga ezivela kumasiko ahlukene.

INyanga Nogwaja

Unogwaja neNyanga bahlangana emgodini wamanzi ngobunye ubusuku. Unogwaja wageza ubuso bakhe ngamanzi. Amanzi athula njengesibuko. Wazibona emanzini wabe esebona ukuthi iNyanga yayiyinhle kunaye. Ingakho unogwaja wathatha udaka eceleni kwechibi waluphonsa ebusweni beNyanga.

Lusabonakala nanamuhla udaka ebusweni beNyanga, uma uyibheka iNyanga ebusuku.

IMIBUZO

1. Ucabanga ukuthi abantu abakhuluma lolu daba babebhekeni eNyangeni lapho bechaza "udaka" ebusweni beNyanga?

2. Ucabanga ukuthi kwakulungile yini ukuth unogwaja ajikijele inyanga ngodaka?

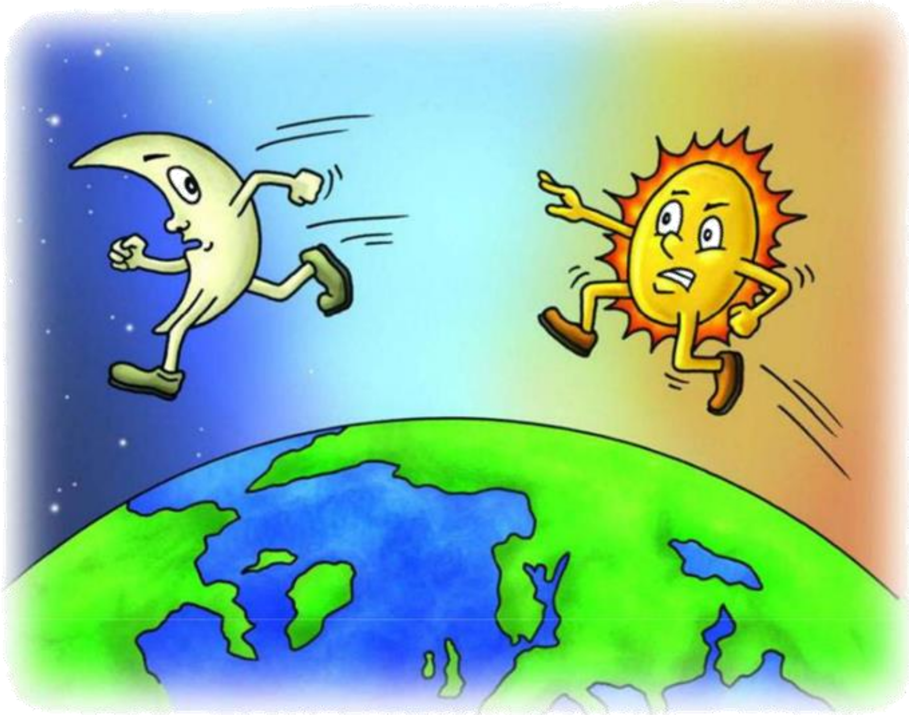
3. Yimuphi umuzwa unogwaja ayenawo?

INyanga neLanga

Kudala iLanga neNyanga bashada bathola izingane eziningi ezaziwa ngokuthi izinkanyezi.
ILanga lalizithanda kakhulu izingane zalo futhi lalihlala lifuna ukuzigona.
Kodwa lalishisa kakhulu futhi izinkanyezi zazisha.

Izinkanyezi zazingakuthandi ukushiswa ngakho zazihlale zibaleka ziyocasha phezulu esibhakabhakeni. Kodwa izinkanyezi zazithanda ukuhlala nomama wazo, iNyanga, ngoba wayengumuntu opholile. INyanga yayinezimpawu ebusweni futhi yayiyinhle.
Lokhu kwenza iLanga laba nomona, lathukuthelela iNyanga.
Yingakho iLanga lixosha iNyanga esibhakabhakeni.
Kwezinye izinsuku uke uyibone iNyanga emini kodwa iLanga licishe lingayibambi.

Kunezikhathi lapho iNyanga ifika phakathi kweLanga noMhlaba, bese sibona iLanga liba mnyama. Lesi simo sibizwa ngokuthi yi-Eclipse yeLanga.



ILanga lijaha iNyanga esibhakabhakeni.

IMIBUZO

1. Kulendaba, ubani ubaba, ubani umama, futhi obani izinkanyezi?

2. Kulendaba, kwenzekani ekuseni lapho iLanga liphuma?

3. Wazi kanjani ukuthi lendaba ayilona iqiniso?

4. Indaba iyasisiza ukuthi sikhumbule amaqiniso athile. Yisho iqiniso elilodwa esilithola kulendaba.

5. Kungani iLanga nezinye izinkanyezi kushisa?

6. Esibhakabhakeni sangempela, kungani izinkanyezi zinyamalala lapho iLanga liphuma.

7. Esibhakabhakeni sangempela, ungakwazi yini ukuyibona iNyanga emini?

IMIQONDO EMQOKA

- Inyanga iyibhola ledwala
- Ihamba emkhathini futhi izungeza uMhlaba
- Ibonisa ukukhanya okuvela eLangeni kuye eMhlabeni
- INyanga inezigaba ngenxa yokuma kwayo maqondana neLanga Nomhlaba

Yilokho kuphela! Uqedile ngeBanga lesi-4!

UKUBUYEKEZWA:

1. Yenziwe ngani iNyanga?

2. Kungani iNyanga isinikeza ukukhanya ebusuku?

3. Zingaki izinsuku okufanele zidlule phakathi kobusuku lapho iNyanga igcwele, kanye neNyanga elandelayo egcwele?

4. Uma sibona uhhafu weNyanga ufana nohlamvu D. Kungani sibona ingxenye yeNyanga kuphela?

5. Silibiza ngokuthi yini iphethini eguqukayo yomumo yeNyanga phakathi nenyanga?

6. Hlela uMhlaba, iLanga neNyanga ngokulandelana ukusuka kokukhulu kuya kokuncane.