

SCIENCE SPAZA

www.sciencespaza.org



ARCHAEOLOGY: UKUMAMELA IXESHA ELIDLULILEYO

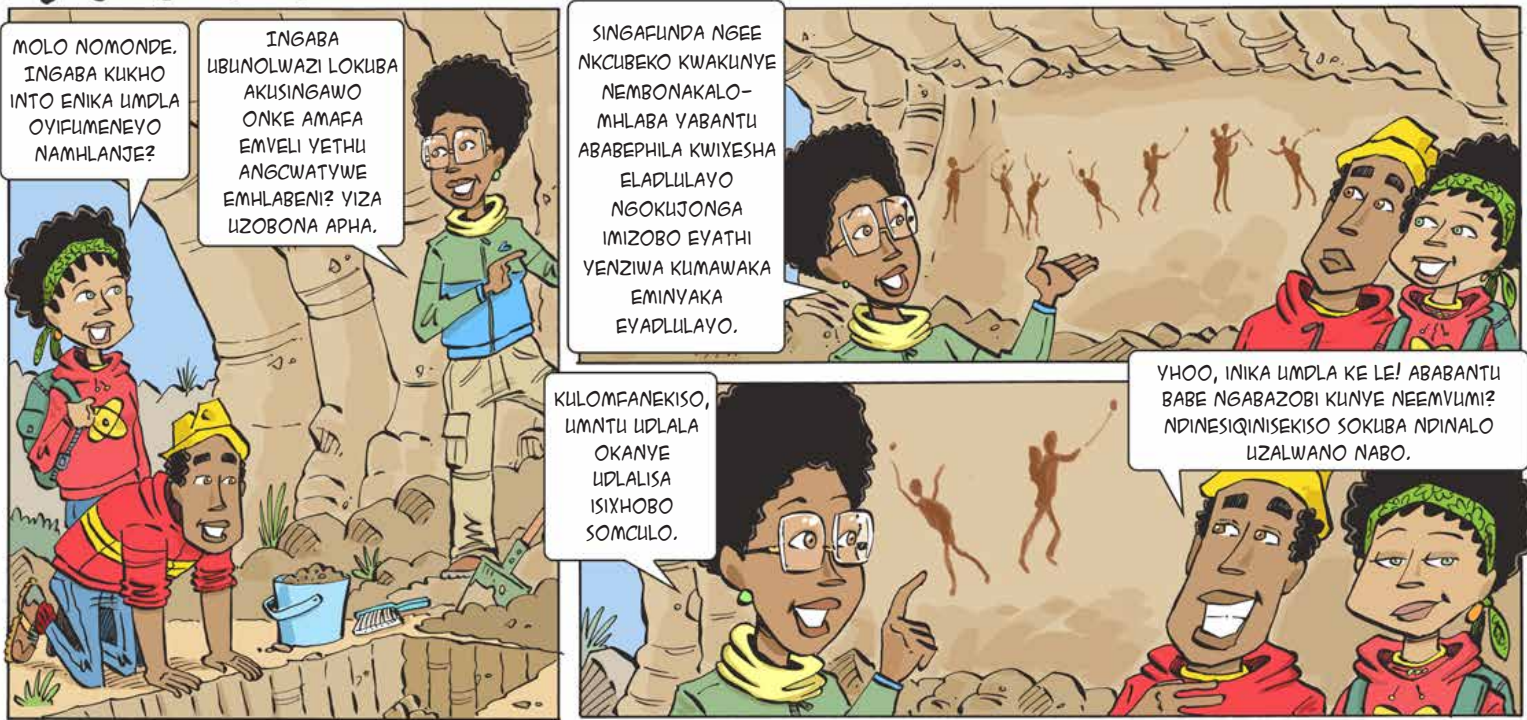
MOLO NOMONDE. INGABA KUKHO INTO ENIKA UMDLA OVIFUMENEYO NAMHLANJE?

INGABA UBUNOLWAZI LOKUBA AKUSINGAWO ONKE AMAFA EMVELI YETHU ANGCWATYWE EMHLABENI? YIZA UZOBONA APHA.

SINGAFUNDA NGEENKUBENKUBENKUNYE NEMBONAKALO-MHLABA YABANTU ABABEPHILA KWIXESHA ELADLULAYO NGOKUJONGA IMIZOBO EYATHI YENZIWA KUMAWAKA EMINYAKA EVADLULAYO.

KULOMFANEKISO, UMNTU UDLALA OKANYE UDLALISA ISIXHOBO SOMCULO.

YHOO, INIKA UMDLA KE LE! ABABANTU BABE NGABAZOBI KUNYE NEEMVUMI? NDINESIQINISEKISO SOKUBA NDINALO UZALWANO NABO.



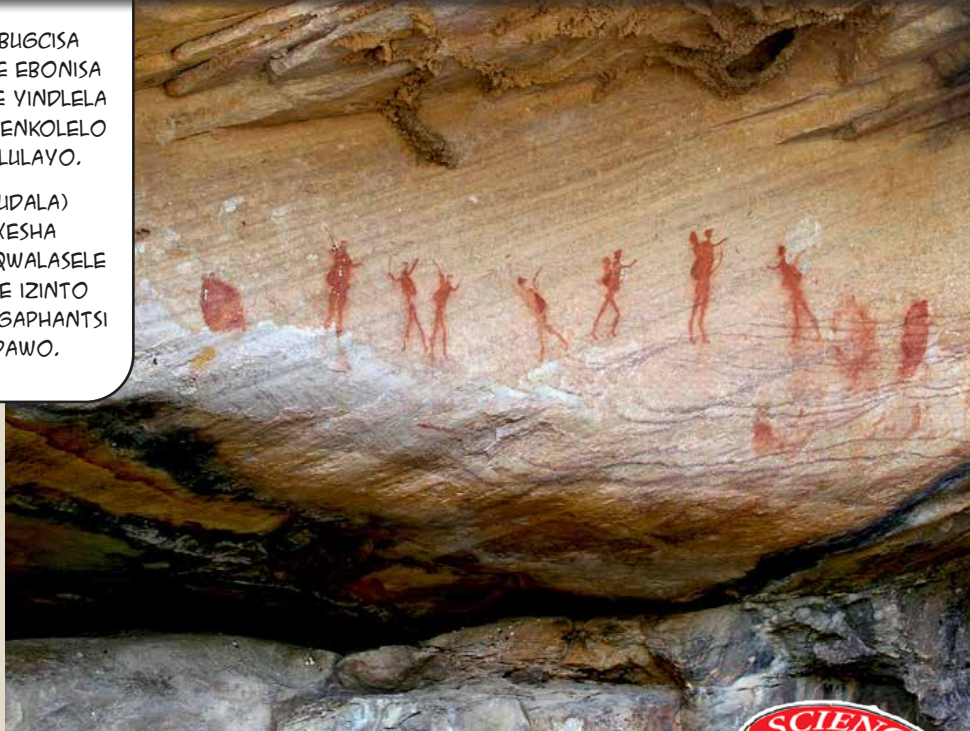
INTSHAYELELO NGE NDWALA BUGCISA ESEMATYENI YELOMZANSTI AFRICA

UMZANTSI AFRICA UNENTAPHANE YEE NDWALA-BUGCISA EFUMANEKA KWIMIQOLOMBA, NASEMATYENI ASELE EBONISA IIMPAWU ZOKHUKHULISEKO NGENZA YOBUDALA. LE YINDLELA ABANTU BABEBONISA NGAYO LIVILO KWAKUNYE NEENKOLELO ZABO, AMAWAKA NGAMAWAKA EMINYAKA EVADLULAYO.

II **ARCHAEOLOGISTS** (ABEMBI BEZINTO ZAKUDALA) ZINGCALI EZIFUNDA NGEXESHA ELIDLULILEYO NGOKUTHI BAQWALASELE IIMIZOBO KUNYE NEZINYE IZINTO EZATHI ZANGCWABEKA NGAPHANTSI KOMHLABA KWEZI NDAWO.



Imizobo yabantu ezotywe kumqolomba okwiintaba ze Cederberg, entshona koloni. Isithombe ngokufotwa ngu: © Neil Rusch



Knowledge is Ncah!



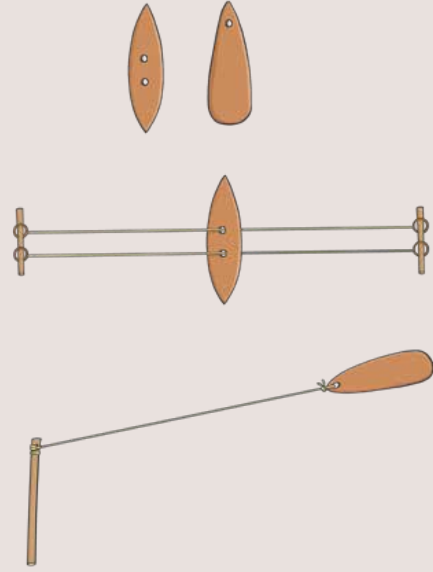
YENZA I BULLROARER

I **BULLROARER** SISIXHOBO ESILULA ESENZA INGXOLO XASIJIKELEZISWA EMOYENI. II ARCHEOLOGISTS (ABEMBI BEZINTO ZAKUDALA) ZIKHOLELWA UKUBA II BULLROARERS NAMANYE AMACWECWE AJIKELEZAYO AFANA NE "WOER-WOERS" ZAZISETYENZISWA NGABANTU ABABEPHILA KWIXESHA ELADLULAYO UKUNXIBELELANA KWIMIGAMA EMIDE, AKUBHENGEZA AMASIKO OKANYE NJE UKWENZA UMCILO!



UZAKUDINGA:

- UNOMINXA WOKUSIKA (ISIKERE)
- IQWAKUQWAKU LEKHALIBHODI OKANYE IPULASITIKI ELIQWAKUQWAKU
- IPENSILE OKANYE UMONGO WOKUBHALA
- ISIXHOBO SOKUGQOBHOZA IPHEPHA OKANYE UMONGO WOKUBHALA OLOLIWEYO
- IRHALI OKANYE INTANJANA EMALUNGA NAMASHUMI AMAHLANU EESENTIMITHA (50CM) OKANYE ISIQINGATHA SEMITHA
- ISINTI SOKUBOPHELELA IRHALI (AYISOSINYANZELISO)



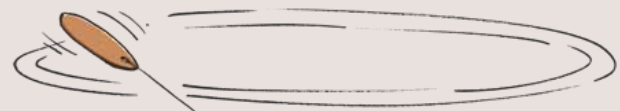
1 ZOBA UZE USIKE, UKHUPHE IKHALIBHODI OKANYE IPULASITIKI EBUMILA OKWEQANDA. INGAMALUNGA NEESENTIMITHA EZILISHUMI UKUYA KWEZILISHUMI ELINESIHLANU UBUDE KUNYE NEESENTIMITHA EZI NTLANU UKUYA KWEZISIBHOZO UKUVULEKA.

2 GQOBHOZA OKANYE UVULE UMNGXUNYA EKUPHELE KWEKHALIBHODI ELIMILE OKWEQANDA.



3 THUNGELA IRHALI KUMNGXUMA WE HKALIBHODI ELIBUMILA OKWEQANDA ZE UYIBOPHE.

4 BOPHELELA IRHALI OKANYE INTAMBO KWISINTI, UKUBA UKHETHA UKWENZA OKO



5 JINGISA I BULLROARER NGAPHEZU KWENTLOKO NANGAPHAMBI KWAKHO. MAMELA UMCILO WEXESHA ELADLULAYO.



KWENZEKA NTONI APHA?

UKUJIKELEZISA I BULLROARER KWENZA INGXOLO NJENGOKO INTO IVE ISHUKUNYISWE NGUMOYA.

UKUMILA KUNYE NOBUNZIMA BAYO LDISKI EJIKELEZAYO ZIZAKUBANEGALELO KWINGXOLO OYIVAYO. ZAMA UKWENZA EYAKHO I BULLROARER IBENOBUNZIMA USIKE ZE UNCAMATHISELE EKWAMILO-NYE NAYO. MAMELA UMAHLIKO KWINGXOLO ETHI IYENZE.



AMAQHEKEZA WE PHAZILI

Ngamanye amaxesha xa abembi bezinto zakudala bathi babenethamsanqa, ze bavumbulule bafumane izinto ezifana twatse nezi zizotywe emiqolombeni. Kutshanje, umphandi weDyunivesithi i Witwatersrand, uYoshuwa uFumene ii bullroarer kwizinto egronjiweyo e Kapa. Ezizixhobo zomculo zifana twatse nezo ezazotywa ngabazobi bexesha eladlulayo kwimiqolomba ekuFutshane.



Ngasentla: u Joshua uyagrumba echwebeni lomlambo l Klasies



Izinto zobugcisa zomlambo l Martes.
Ngokufotwa ngu: © Neil Rusch

U Yoshua kunye nabanye abaphandi be dyunivesithi i Witwatersrand bafunda ngengxolo kunye nomculo wabantu ababephila phambili pha kweli lomzantsi Africa. Uye kwakhona athabathe ixesha eladhulayo alise kwellisezayo nge projekthi i *Open Heritage*. Le projekthi isebenzisa I software ukutshintsha ubume, ze ipapashe iindawo zobugcisa zakudala kunye nezinto zobugcisa ukuze zikwazi ukufumaneka zibelulutho nakwintala yexesha elizayo.



Joshua Kumbani

IMISEBENZI



I **ARCHAEOLOGY** IN INAMATHUBA ACHULUMANCISAYO AFANA NOKWENZA UPHANDO OKANYE UKUSEBENZA KUMAZIKO EMIBONISO YEZENKUBEKO NAMAFU EMVELI. EZINYE ZEENDAWO EZIQULETHE OKANYE EZIBONISA INDLELA EBABEPHILA NGAYO ABANTU KUMAWAKA-WAKA EMINYAKA EYADLULAYO ZIYABAVUMELA ABAKHENKETHI UKUBA BANDWENDWELE ZE BABUKE INDALO KUNYE NELIFA LEMVELI VALOO NDAWO. AMATHUBA EMISEBENZI KWINDAWO ZELIFA LEMVELI AQUKA UKUBA SISIKHOKHELO ESIBONISA SIPHINDE SICHAZELE ABANTU NGALEYO NDAWO, MGCINI MAFA WE MYUZIAM KWAKUNYE NO NOKUHLOHLA OKANYE OFUNDISAYO NGALO NDAWO.

UNXULUMANO NOKUFUNDWA ESIKOLWENI

- *IziFundo zobunzululwazi kuibanga leshumi (Physical Science):*
Amaza kunye nemitha, amaza omoya
- *Ibanga lesihlanu Kwizifundo ngentlalo yabantu (Social Sciences):*
ngabantu ebabephila ngokuzingela-nokuqokelelo kunye nabaFuyi basemazantsi eAfrika.

Knowledge is Ncah!



PUZZLE YOUR MIND

LELIPHI IQHEKEZA LEHAZILI ELIZAKUGQIBELELA LOMFANEKISO? DIBANISA UNOBUMBA OFANELEKILEYO KUNYE KHADI ELILINANA UKUGQIBELELA IXESHA.

1



IZINTO ZEXABISO
EZIDLULISELWA
KWIZIZUKWALANA ZEXESHA
ELIZAYO. ISENOKUBA
SISITHETHE, ULWIMI OKANYE
INDAWO.

2



UKUFUNDA NGENBALI
NEMVELAPHI YOLUNTU
NGOKUJONGA IINTSALELA
ZEXESHA ELADLULAYO.

3



UKUSUSA UMHLABA
NGENKATHALO ENDAWENI,
UKHANGELA IINTSALELA
EZANGCWABEKAYO.



A



B



C

ZIQALELE ESAKHO ISIPHAZA SE SCIENCE

Ingaba uyafuna ukuziqalela i club ye science kwisikolo sakho? Sithumelele ezinkcukacha zilandelayo, i science sphaza izakuqhakamshelana nawe.

Isikolo: _____

Igama lakho: _____

Inombolo yomnxeba: _____

Idilesi ye imeyile: _____

Idilesi yokuhlala: _____

Visit www.sciencespaza.org, email info@sciencespaza.org, SMS or WhatsApp us on 076 173 7130 or write to us at PO Box 22106, Mayor's Walk, 3208.

SIFUNA UKUVA KUWE!

SINGAKONWABELA UKUBONA IIFOTO ZE BULLROARERS ZENU. SIBONISE IIFOTO ZAKHO! NDWENDWELA I-SCIENCE SPAZA YETHU KWIKHASI LEZONXIBELELWANO KU FACEBOOK, OKANYE USITHUMELELE IZITHOMBE ZAKHO KUWHATSAPP, KULE NOMBOLO ILANDELAYO 076 173 7130.



science & innovation
Department:
Science and Innovation
REPUBLIC OF SOUTH AFRICA

Isebe lezobunzululwazi nobugcisa linegalelo kuphuculo nokhuliso lwentlalo ngokusebenzisa iezobunzululwazi, ubuchwephetshe kunye nobugcisa. Ngeenkukacha ezithe vetshe ndwenwela ikhasi lesebe ku : www.dsi.gov.za



SAASTA
South African Agency for Science
and Technology Advancement

The South African Agency for Science and Technology Advancement (SAASTA) is a business unit of the National Research Foundation (NRF). The NRF is an agency of the Department of Science and Innovation (DSI) which falls within the Ministry of Higher Education, Science and Innovation.

I Open Heritage liqumru elizimeleyo elingafumani nzuzo, ogqwesileyo ekutshintsheni nasekulungiseni ilifa lemveli ngokusebenzisa ubuxhakaxhaka banamhlanje. Eli qumru selihambe umgama omde ekwakheni ubuxhakaxhaka kuzwelonke kwiinkundla zokuxhumana kwizwekazi le Afrika jikelele, liphinde liqeqeshe, liphakamise, likhulise nezakhono zobuxhakaxhaka banamhlanje ezenza kubelula ukuxhumana emhlabeni wonke jikelele.



OpenHeritage
THE FUTURE OF OUR PAST



Jive Media Africa

Science Spaza is an initiative of research communication specialists Jive Media Africa in partnership with the Yazi Centre for Science and Society in Africa, a registered Non-Profit Company and Public Benefit Organisation. This work is licensed under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License. To view a copy of this license, visit <http://creativecommons.org/licenses/by-nc-nd/4.0/>.



CENTRE FOR
SCIENCE & SOCIETY
IN AFRICA