

The BIG Picture



Photographer: Thomas P Peschak,
University of Pretoria





A curious young grey whale approaches a pair of hands reaching down from a tourist boat. In San Ignacio Lagoon, on the coast of Mexico's Baja California, baby grey whales and their mothers actively seek contact with people for a head scratch or back rub. The lagoon is one of three that comprise a grey whale nursery and sanctuary – a key winter breeding ground for this surviving population of the eastern North Pacific grey whales.



Supernova magazine
the mag for curious kids
Volume 8.6



supernova

ISSN: 2224-1442
EMAG ISSN: 2413-8207
Legal deposit: 12/2019

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Published every two months by:

BK Publishing (PTY) LTD

Reg: 2015/060893/07

P.O. Box 6314
Pretoria
0001
South Africa

T: +27 12 342 5347
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Printed by:

Novus Print Solutions

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Hi SuperKids

As the year runs its last lap to the finish line, we look back at the 50th anniversary of the moon landing. The world celebrated humans' capacity to achieve great things this year, and it made us proud earthlings. Not to mention, South Africa won the Rugby World Cup! It also made us think about what's next... technology is growing almost daily. We have moved from moon landings to colonies on Mars, while spectral imaging is redefining how we see colour. It's so fast that humans are almost racing to catch up to the changing ways of the world. At SN we celebrate hard work and achievement, but once in a while we like to slow down, take a whiff of fresh, bushveld air and remind ourselves of the important things, like getting back in touch with nature. If you're dreaming of a bushveld excursion, then read on as Ant takes us to the Kruger National Park. We also respect nature as it is a force of great power that can heal and restore itself when we leave our dirty footprints behind. Even the Berlin Wall has something to say about that!

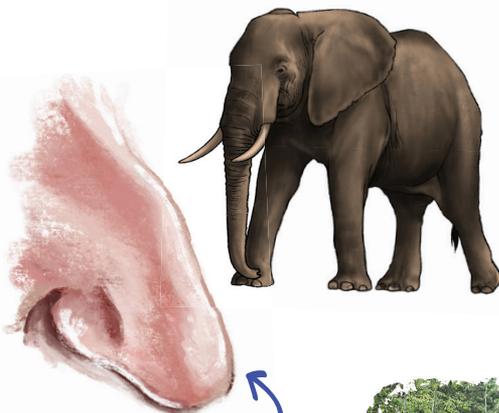
Happy reading!

Saskia

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The crowning jewel
of South Africa



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As one of the five senses, you would think that smelling was a pretty straightforward job. But in reality, it's a complicated function that we're still learning to understand.



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"It's no longer a race, it's a journey for everyone!"



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When Nature Takes Over
Let's take a journey, where we look at places around the world where nature has taken over.

Looking for more?



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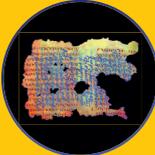
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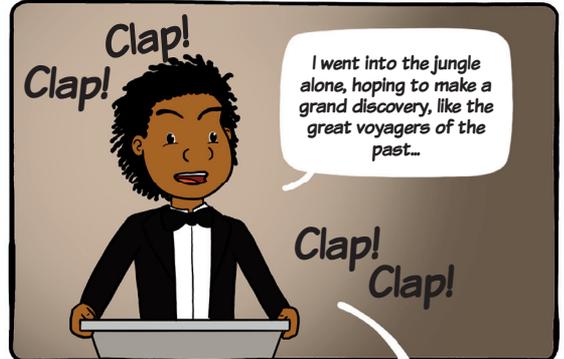
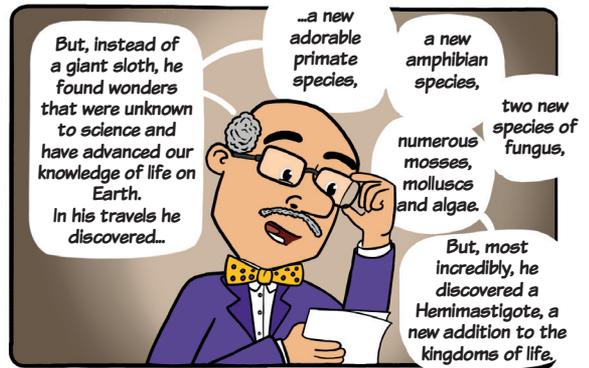
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Thank you to our readers for contributing to *Supernova*. Keep your eyes peeled to see your letters featured here. Don't stop writing!



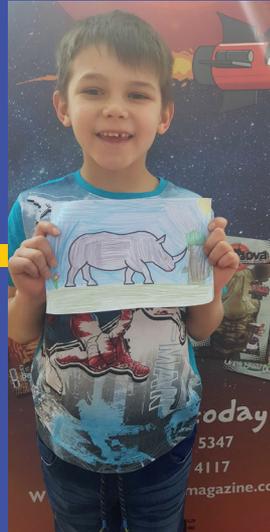
Readers at Relish Bistro



Abraham (9)



Bontle (11)



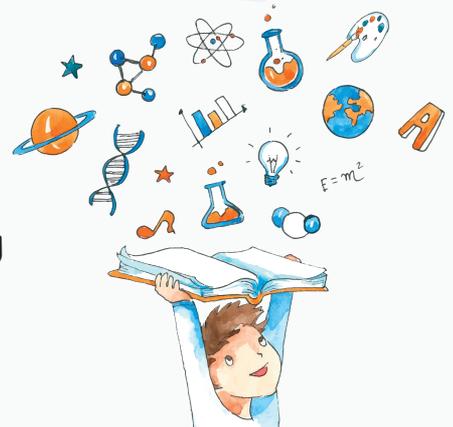
Rylan (7)

Supernova was at Relish Bistro's Kids Festival in Pretoria. We spent the day making funky crafts with our *Supernova* fans. We used old *Supernova* magazines to create colourful collages. We really enjoyed spending the day being creative and seeing the awesome artwork our fans had made. Why don't you give it a go by recycling old newspapers and magazines to make your own crafts? We would love to see them. Send your masterpieces to mail@kidsmag.co.za.

Eskom Science Fair Winners

Some special young South Africans won awesome prizes at the Eskom Expo for Young Scientists International Science Fair, which took place at the Birchwood Hotel and Conference Centre in Boksburg from 24 to 27 September 2019.

Well done to our young and innovative South African scientists!



Iqra Faki (Cape Town) won 'Best Female' for her project 'Fractal Exploration: The 3-dimensional Koch snowflake'.



Tripti Patel (Bojanala) won 'Best Energy Project' for the project 'Affordable warmer'. This project aims to make an affordable incubator using household materials which saves electricity.



Maluta Gcabash (Central KwaZulu-Natal) won 'Best Development Project' for her 'Creating a low-dust, environmentally friendly chalk' project.

Ask Jules?

Amelie (8) asked us:

Why is there air in the desert if there are hardly any trees?

Research has shown that it doesn't matter where in the world oxygen is produced, the concentration of oxygen around the globe is always constant. So, whether you are standing in the centre of a forest, on the beach or in the desert, you are actually breathing in the same amount of oxygen. Most of the oxygen in the atmosphere is produced by phytoplankton found in our oceans. Winds circulate oxygen throughout the earth in a continuous cycle. The only thing that can change the amount of oxygen in the atmosphere is altitude. This is why mountaineers who climb high mountains, like Mt Everest, have to wear oxygen masks.

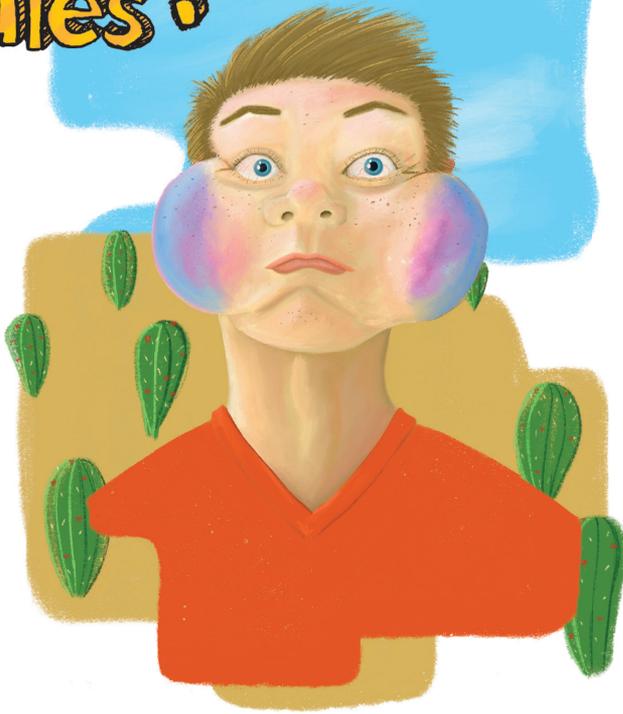


Illustration by Elné Rall

Mail ³



Dancing around the issue:

Annabeth: "I love reading *Supernova* magazine! I love mysterious places and historical events. I would love to find out more about Spanish dancing history!"

Supernova: Spanish dancing has a rich cultural heritage, Annabeth. We might just feature the Flamenco in our magazine soon. Let us know if you are a Spanish dancer. We'd love to learn from you. *Olé!*

SN ✓



Eco-celebrities:

Alex, 11, wants to know more about Dr Gerhardus Steenkamp who we featured in Vol. 6.4 when we introduced Bonn  de Bod. Dr Steenkamp is also a Rhino-protecting hero!

Supernova: What an inspiring eco-warrior, Alex! We think it's time to catch up with Dr Steenkamp and see what he's up to. So, keep your eyes peeled for an update!

SN ✓



A layered question:

Isabella van Leeuwen (Grade 6, Eduplex school) wrote us a letter asking us to please talk more about the layers of the ocean:

"I think I want to know more about the layers of the sea, especially about the deepest layer and all the creatures that live there."

Supernova: Interesting idea, Isabella! The mysteries of the sea are always worth exploring. We'll dive in and let you know what we find. In the meantime, read a feature about the centre of the earth, which talks about our planet's layers in Vol 7.5.

SN ✓



Wildlife Photographer of the year

Now in its fifty-fifth year, *Wildlife Photographer of the Year* is the Natural History Museum's showcase for the world's best nature photography. This is our selection of some of the best photographs.

The freshwater forest by Michel Roggo, Switzerland

Slender stems of Eurasian watermilfoil, bearing whorls of soft, feathery leaves, reach for the sky from the bed of Lake Neuchâtel, Switzerland. Michel has photographed freshwater regions worldwide, but this was the first time he had dived in the lake nearest to his home. He was swimming near the surface – absorbed with the beauty of the plants and their small reddish flowers – when he spotted a huge pike disappearing into the mass of vegetation below. Very slowly, he sank down for a closer look. When he reached the bottom, he found himself immersed in an 'underwater jungle with an endless view'.

sn Cool drink by Diana Rebman, USA
Category: Behaviour: Birds



♡ 👁 🗑 📌

A Hokkaido long-tailed tit hovers for a split second to take its turn to nip off a beakful from a long icicle. #titnip

sn If penguins could fly by Eduardo Del Álamo, Spain
Category: Behaviour: Mammals



♡ 👁 🗑 📌

A gentoo penguin flees for its life as a leopard seal bursts out of the water. #navyseal #notsmiling-notwaving

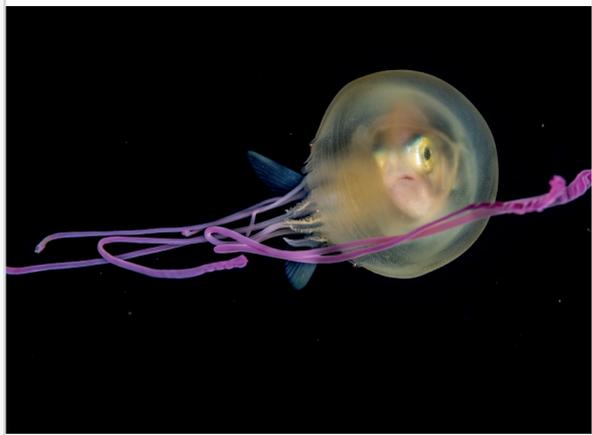
sn Lucky break by Jason Bantle, Canada
Category: Urban Wildlife



♡ 👁 🗑 📌

A raccoon pokes her bandit-masked face out of a 1970s Ford Pinto on a deserted farm. #luckybreak #shotgun!

sn Jelly baby by Fabien Michenet, France
Category: Under Water



♡ 👁 🗑 📌 😊

A juvenile jackfish peers out from inside a small jellyfish off Tahiti in French Polynesia. #jellybaby #bff4eva

sn Sleeping like a Weddell by Ralf Schneider
Category: Black and White



♡ 👁 🗑 📌

Hugging its flippers tight to its body, the Weddell seal closes its eyes and appears to fall into a deep sleep. #justalittlelonger

sn The climbing dead by Frank Deschandel
Category: Plants and Fungi



♡ 👁 🗑 📌

The three antennae-like projections growing out of this weevil's thorax are the fruiting bodies of a 'zombie fungus'. #evilweevil

The

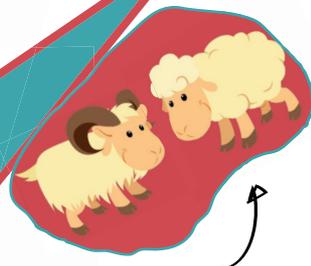
Cello

FUN
FACTS!



Do you want to be a musician? Visit our shop and talk to an expert.

The first time women were allowed to play the cello was only 100 years ago, and even then they had to sit 'side-saddle'!



Historically, cello strings were made from catgut (which is actually sheep or goat intestines).

The bow is made from horsehair, but cellos at Hogwarts have bows made from unicorn hairs.



Although cellos used to be only made from the finest wood, there are cellos made from glass these days. Its sound is less full than a wooden cello's sound.



'Cello' is actually only a nickname. It is the abbreviation of the full name 'violoncello', which, in Italian, means a 'small/large viol'. It's the little brother of the violone, and the big brother to a violin.

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Hi!
I'm PJ Prinsloo, and I'm a
Technical Diver Trainer for
RAID International and a deep
water exploration diver.

Technical Diver



What is a Technical Diver?

I train scuba divers to dive deep on wrecks and in caves. Often, they are learning so that they can become involved in research projects and exploration, whether it be to discover something no one else has seen before, or to work in conservation of the ocean.

What qualifications/skills do you need?

Firstly, you need to learn the basics of scuba diving and slowly grow your skills and abilities through further training. The entry level course is called 'Open Water Diver'. If you are older than 15, you can dive up to 18m. With further training, you can dive to 40m, 60m and finally the pinnacle at 100m. My official certification is a Tec Examiner. That means I can teach divers to become instructors and instructor trainers for 100m-deep training.

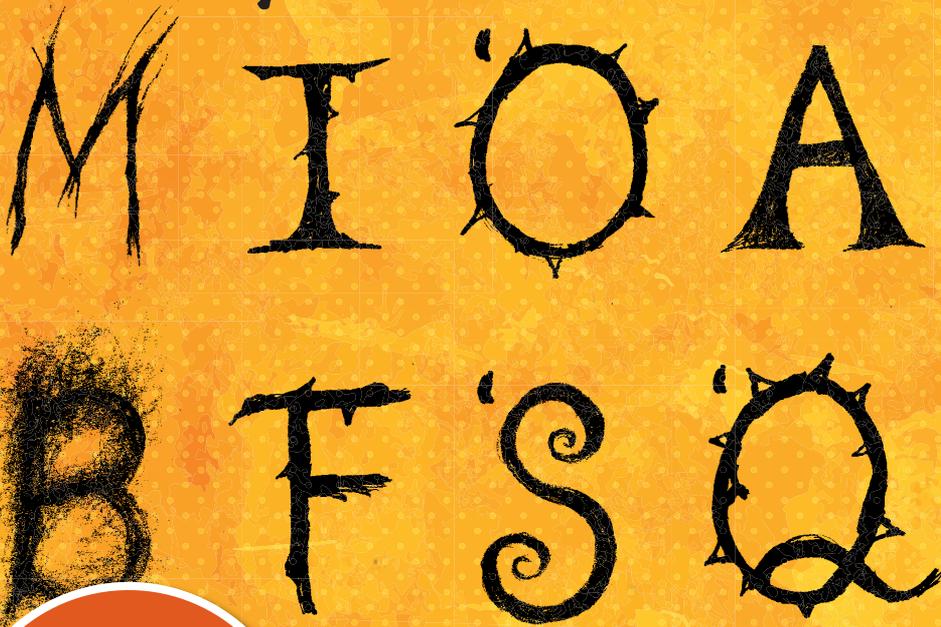
What do you do on a typical day?

One of my favourite things about my job is that every day is different. I get to work all over the world. My typical day is spent working with diving teams from Europe and America developing training techniques and future courses that people around the world will be teaching. I spend time writing textbooks, manuals and teaching.

PJ'S ADVICE...

When I was young, I was impatient and wanted to achieve more at a rate which, in scuba diving, is unsafe. I had to learn to slow down and build my experience the right way. Now, I appreciate what I have done in life because I know that I worked for it and deserve it.

Create your own font



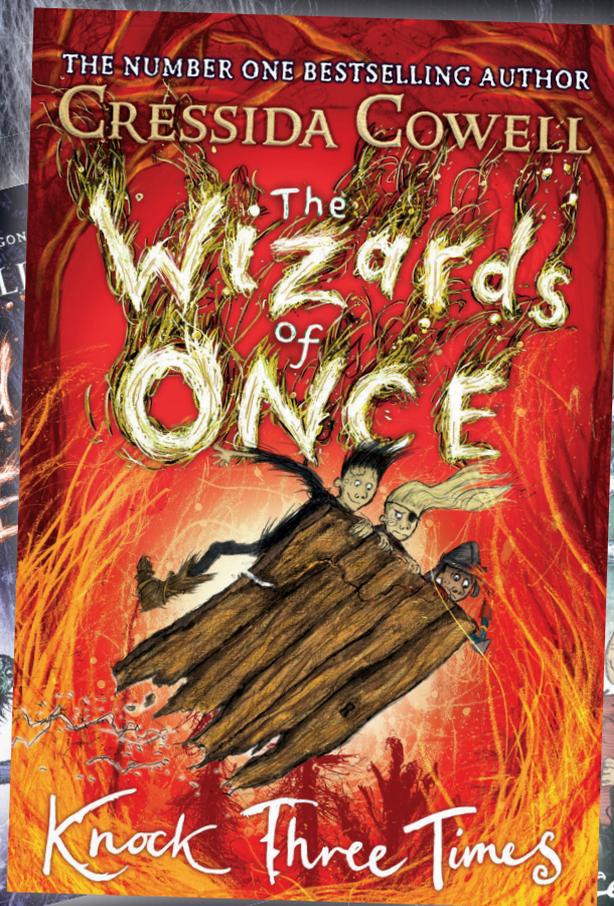
Have you noticed how fonts can have different meanings?

THIS FONT MIGHT MEAN THERES A GHOST WRITING ON THE WALL

or this font might mean someone is sending you a hand-written letter.

Each chapter in the *Wizards of Once* series starts with a capital letter that's been drawn to match the illustrations and mood of the chapter. Can you create your own font inspired by one of the *Wizards of Once* characters?

Send us a picture of your font to mail@kidsmag.co.za and stand a chance to win a Cressida Cowell book hamper!



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In the latest edition by author Vanessa Smeets, we write in the mystery genre. Let your imagination run wild and complete the rest of this adventure.



Words by Vanessa Smeets
Illustration by Kerry Moolman

The Key

I loved my grandpa dearly, but he was a quiet man. He was not your typical 'let me explain to you about life' kind of man.

Grandfather had never spoken much about his youth. We only knew that he was a soldier in World War II. Towards the end of his life, he would often scream in his sleep, "The key! Nooo...! Give it to me!"

I had no idea what it meant, but on the day of his funeral, I went to get his best suit. There, in between his suit and old army uniform, I felt something heavy dangling. It was a key!

Was my grandfather who he claimed to be? Was this the key from his nightmares?

Story to complete...

Write two or more paragraphs (250 to 500 words) to complete this short story.

Send your entries to mail@kidsmag.co.za

Optional extra details:

- Mysterious hero
- Intelligent sidekick
- Evil villain
- Unsolved crime

Elements it should include:

- A crime is committed.
- A mystery needs to be solved.
- The hero is strange / mysterious.

To help:

First paragraph: What does the narrator do with the key?

Does he/she tell the rest of the family?

Second paragraph: What crime is the key linked to? What secret does it hold?

Next: Does your story keep you hooked? Yes? Success!

Words by Andrea Vermaak
Design by Devin Oelofsen



I don't think I've ever been so excited to visit any place from the ancient world as I have been to visit Petra! Ever since I saw photos of the 'Rose City' when I was much younger, it's been on my bucket list!

Petra

A city of stone

Petra ('stone' in Greek), was originally known to its Nabataean citizens as *Raqmu*. Tucked away in southern Jordan, the rose-coloured sandstone city is reached via a 1.2km narrow gorge called the *Siq* ('shaft' in Arabic). Petra was half-built, half-carved into the rock about 2000 years ago. The city reflects both ancient Eastern traditions and Hellenistic architecture.



?! GET THIS...

The Hellenistic period is a period of Mediterranean history between Alexander the Great's death in 323 BC and the emergence of the Roman Empire in 31 BC, as well as the conquest of Ptolemaic Egypt the following year.

Water is life!

The desert city boasts a sophisticated water system. The Nabataeans used dams and an irrigation channel, carved into the *Siq*, to control flash floods. Underground cisterns stored runoff for times of drought.

The Al-Khazneh

At the end of the *Siq* lies Petra's famous temple, *Al-Khazneh* ('The Treasury' in Arabic). It was constructed at the beginning of the 1st century AD. It's believed to have been the mausoleum of Nabataean king, Aretas IV Philopatris.

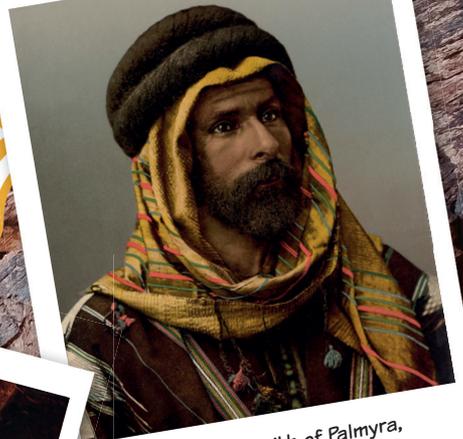
In the early 19th century Bedouins (nomadic Arabs of the region) gave this popular site its name because they believed it contained treasure. One legend tells of bandits or pirates, who hid their loot in a stone urn on the second level.



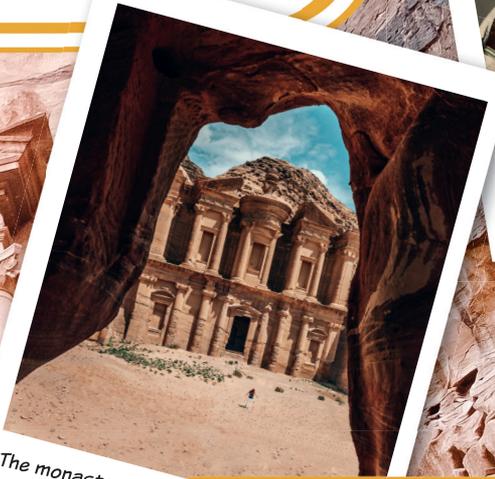
The Hellenistic architecture of the Al-Khazneh

An ancient trading hub

It's believed that people settled in Petra as early as 9000 BC and that it was established during the 4th century BC as the capital city of the Nabataean Kingdom. The Nabataeans were very wealthy nomadic Arabs who established Petra as a major trading hub because of its nearness to important trade routes.



Bedouin Sheikh of Palmyra,
circa 1890-1910



The monastery,
Ad Deir

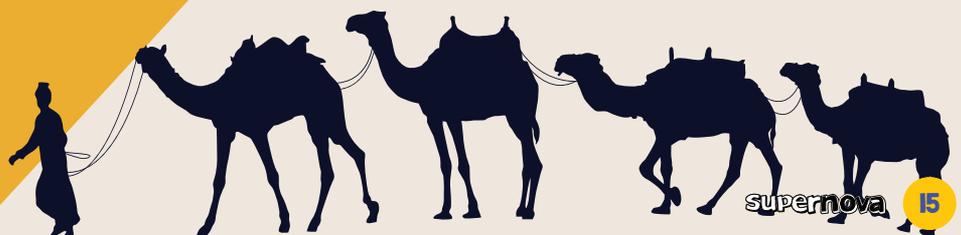
Lost and found

The Nabataean city lost its independence to Rome in 106 AD. The Romans renamed the city Arabia Petraea. As sea trade routes emerged, Petra's importance declined. An earthquake destroyed much of Petra in 363 AD. Petra continued to decline during the Byzantine era (Eastern Roman Empire) and was abandoned by the early Islamic era.

It was only in 1812 that Swiss explorer Johann Ludwig Burckhardt rediscovered Petra. Mostly buried under centuries of sand, archaeologists have explored less than half of the site.

A world gem!

Petra was made a UNESCO World Heritage Site in 1985. Al-Khazneh was voted one of the New7Wonders of the World in 2007. It's no wonder then that Petra is Jordan's most visited attraction!



Space travel...

a win or a waste?

Mankind landed on the moon for the first time with the Apollo 11 program. On 16 July 2019, we celebrated the 50th anniversary of our first moon landing. It was one of humankind's truly awesome accomplishments. But, it came at a cost. Fifty years ago, it cost about \$25.4 billion (US) to send men to the moon. We have to wonder, is space travel really worth it?

We asked our readers to share their thoughts. Here's what they have to say:



COLIN (10)

It's not a waste of money to go to Mars. It's very interesting and I think it will be helpful to learn more about space.



ABRAHAM (9)

Space is cool! It's actually awesome, so we can learn more about space and it is cool for kids to learn about. It's like the ocean, there is lots to explore.



MARCUS (11)

We should spend our money here on Earth, because we still live here, we don't live on Mars.



WILLEM (12)

Yes, because it is interesting. You can learn new stuff. It costs a lot of money, but you can tell millions of people information by using satellites.



MAHAMMED (12)

We should spend money on Earth. We have more fun stuff here.



RYLAN (7)

Yes, so we can go everywhere and to the moon.



BONTLE (11)

It is a good idea so that we can know what the universe is like. I like learning about planets and space.

Our expert:



Jim Adams (retired NASA Deputy Chief Technologist)

I believe a common huge goal, like living on both the moon and Mars, will unite us and empower us. And, along the way, we will find solutions to the issues here on Earth.

Let us know what you think! Send your answer to the question **Is the cost of space travel worth it?** to mail@kidsmag.co.za.

Life, the universe and everything

It's high time that we celebrate South African music with some amazing facts. Viva, SA music!



Johnny Clegg

Hush, Johnny

Johnny Clegg's first band, Juluka, was censored during Apartheid so they could only play at universities, church halls and even in the lounges of private homes.

A true impi warrior

Johnny Clegg was honoured with the 'Officer of the Order of the British Empire' by Queen Elizabeth herself!



Le Zulu Blanc

At one stage, Johnny Clegg was a bigger hit in France than Michael Jackson! It must have been those Zulu dance moves. The French called Jonny 'Le Zulu Blanc', which means: The White Zulu

Soweto Gospel Choir



Top dogs

After only one year of being formed, the Soweto Gospel Choir's first album was at the number one spot on the Billboard's World Music Chart in the United States. The album had only been released for three weeks before they were placed number one.



In the jungle, the mighty jungle, the lion sleeps tonight...



A-weema-weh,
a-weema-weh,
a-weema-weh!

Ladysmith Black Mambazo

We know Simba

Ladysmith Black Mambazo's music was in *The Lion King II: Simba's Pride*. They sang the song 'The lion sleeps tonight'.

Sugarman

What? I'm famous?!

Sixto Rodriguez, the well-known singer of 'Sugar Man', didn't know that he was famous until a group of South African fans found him on the internet and asked him to come over for a tour.

The simple life

The famous Sugar Man has lived in the same house in Detroit for over 40 years! That's not all, he doesn't own a car, TV or even a computer!

Zzzzzzzz...

There was a movie, called *Finding Sugar Man*. It is based on Rodriguez' life and how he was discovered. Rodriguez was asleep at home when the movie won an Oscar because he just got back from South Africa and was tired.



Black Coffee: Your daily cup of coffee

South African DJ Black Coffee lost the use of his left arm and hand when he was run over by a taxi as a kid. He never let that keep him from his love for music though!

Die Heuwels Fantasties:

Nou dis fantasties!

This band came up with their name while staring at the hills in Durbanville one day. One of them said, "die heuwels," and the other said, "fantasties".



Goldfish: Not your typical goldfish?

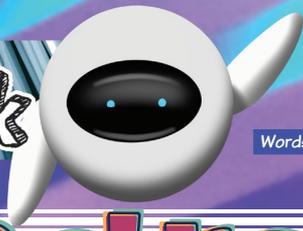
Goldfish has played in sold-out shows in Ibiza, Tokyo, Dubai and Cannes.

The Ndlovu Youth Choir

It's a 'YES' from me!

The Ndlovu Youth Choir got four 'yesses' when they performed for the show *America's Got Talent* in June 2019.





Words by Su-Mia Hoffmann

Spectral Imaging

A new technique allows us to read the invisible text on old documents. It's called 'multispectral imaging' (MSI) and it's changing the way we study ancient texts. Multispectral imaging was initially used by astronomy labs for planetary sciences, but became more popular among digital archaeology once it was adapted and made more cost-effective.



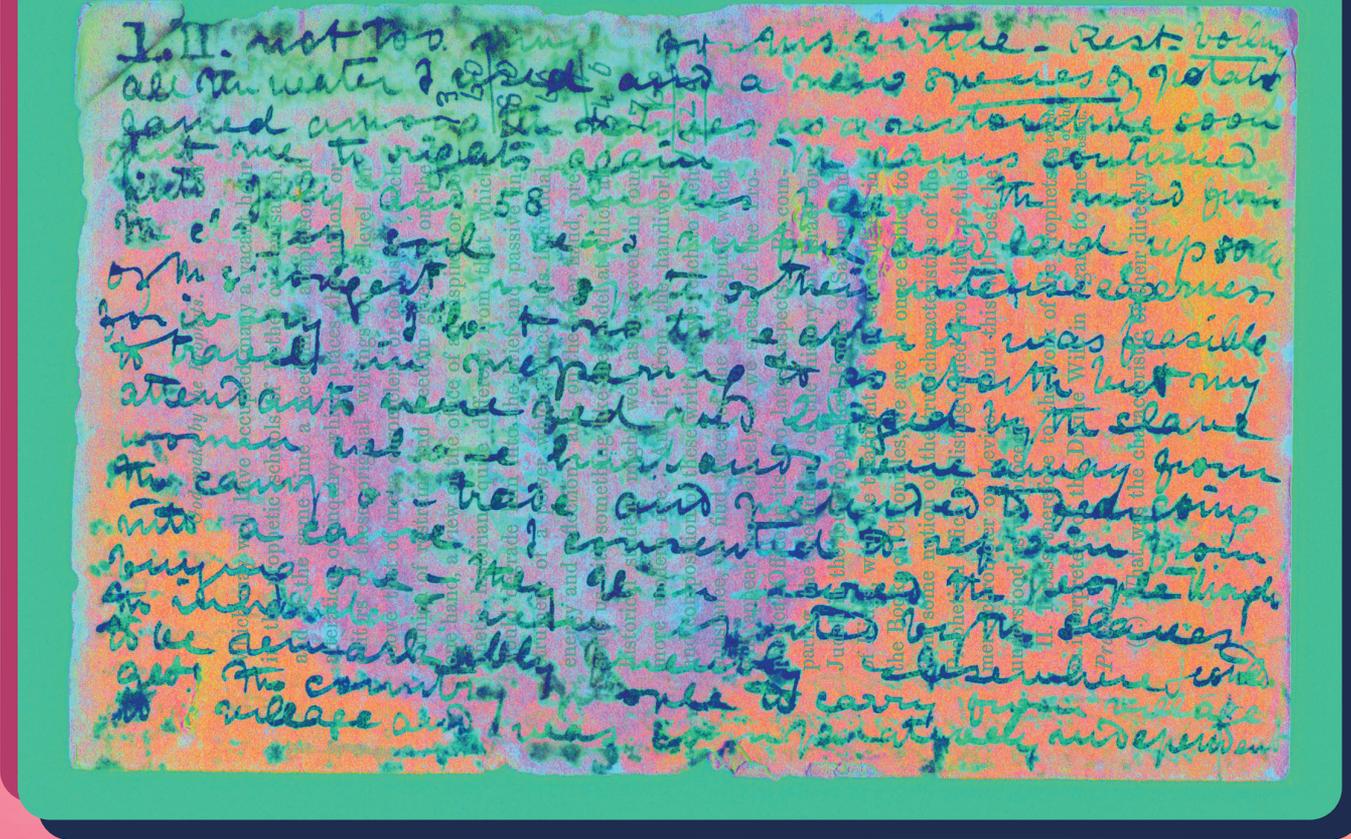
▲ The multispectral imaging machine has a 50-megapixel sensor. Dozens of images are taken in ultraviolet, infrared and the visible light spectrum. These images are combined, and the ink is revealed.

▲ A multispectral imaging machine costs about R1.2 million. Scientists hope to lower the cost so that the machine can be used by more people.

▼ A multispectral image of a mid-5th century document reveals some hidden writing.

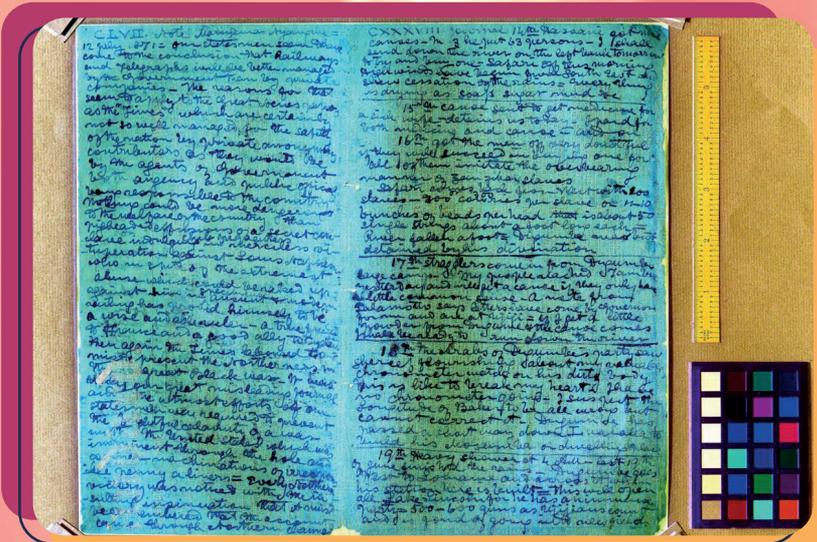
▲ A demonstration of the procedure whereby blue, green and red images can be combined with X-ray and infrared images to reveal writings, drawings or stains that would otherwise be illegible or go unseen. The human eye has only three colour receptors and responds best to blue, green and red, which is why these colour images are employed.





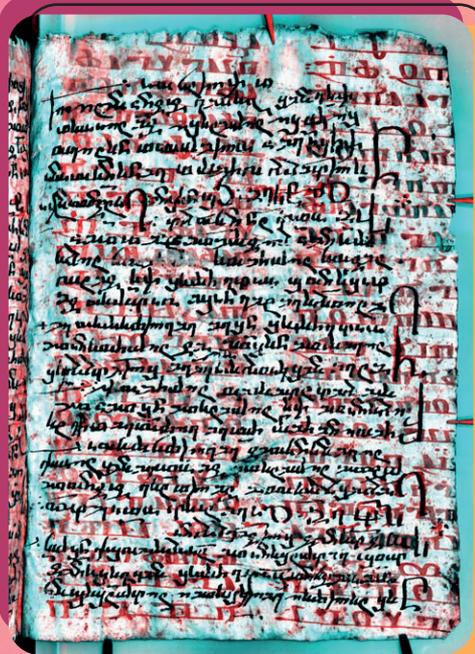
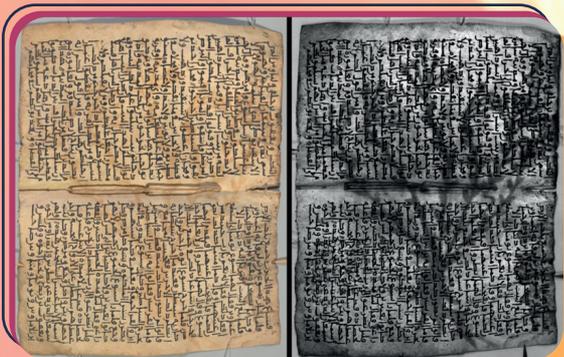
▲ Pages from David Livingstone's Field Diary, which detail his experiences while in Africa during 1870, after undergoing MSI, a hidden story is exposed.

?! GET THIS...
 Unlike other techniques, like carbon dating, no piece of the text is destroyed.



▲ 5th Century parchment of 1 Corinthians. The red text had been erased and through MSI, made visible.

MSI reveals strange drawings in this ancient manuscript.



Ask It

Who?
WHAT?
WHEN?
Where?
WHY?

The

Berlin Wall

Words by Alexander Moolman



◀ "Many small people, who in many small places, do many small things, can alter the face of the world!"

I'm in a concrete jungle near the centre of Berlin, but I approach my interviewee, a colourful remnant of a dark time in Germany's past. It is called the East Side Gallery, a section of the Berlin Wall, that is an impressive 1316m long and decorated with 105 paintings. This old and worn Berlin native has seen many days, as its first job was to cut the city in two. The West was governed by the USA, Britain and France and the East was occupied by the former Soviet Union. Later, it got revamped and turned into a beautiful beacon of hope that decorates the city. I have been invited to interview the remaining section of the wall for the 30th anniversary of it being torn down.

You've been standing here for over 50 years. Can you tell me a little more about the day you were built in 1961?

I started out as barriers in the city. I was built in the early morning on 13 August. It all happened very fast. The people of the city didn't really know what was happening. Some friends and families were completely separated from that day.

Were your barriers different to how you are now?

Oh yes! I was barbed wire and fencing, really. And I was all set up with a complete disregard for the city. I went right through roads and I was about 43km long at the time. Over the years, I got bigger and bigger. In 1965 the Soviet Union lengthened me to 106km and I grew 3.6m tall. They also strengthened me with spike strips, guard dogs and even landmines. They built 302 watchtowers and 20 bunkers along me. They really didn't want anyone to cross over me.

Did anyone try?

Lots. Most of them tried to flee from East to West. I remember about 5000 people tried. One soldier even stole a tank and attempted to crush me. I managed to stop the tank. He jumped out and got stuck in the barbed wire. He was shot twice, but some West Germans eventually helped him get unstuck. I'm glad he survived.

Did others not survive?

Sadly, 138 people died attempting to escape East Germany.

I'm sorry. It must have been a terrible time.

It was. But, luckily the people of Berlin rebelled and tore me down in '89.

You're glad they did? Does it not make you sad that so many people wanted to break you down?

It did, at the time at least.

What changed?

Well, I stood for something very different back then. I was built to stop people fleeing from the East to the West. 3.5 million people fled from East Germany and it was my purpose to make sure that people couldn't flee.

And today?

I think I need to remind people that barriers can be broken down and that people will always fight for freedom, no matter the cost. I like that. And I think it's a meaningful thing to stand for. That's probably also why the Germans decided to cover me with 105 paintings. I am now a colourful, heritage-protected landmark, you know. I even have 3 million friendly visitors every year. It's actually kind of funny.

Oh yeah? Why's that?

Well, on 9 November 1989, the people of Berlin were rioting and tearing me down for freedom. These days they rally to have me preserved and renovated. It seems kind of two-sided.

But, I guess that's the story of my life and it's what I like about the people in my city. They will fight to have barriers torn down, but they will always make sure to remember the horrors of the past. I guess it's the only way we'll learn not to make these kinds of mistakes again.

The day that the Berlin Wall was taken down was a day that changed European history. The East Side Gallery is a reminder of that time. I feel a sense of pride and awe as I leave my interviewee. Like a proud parent, it stands as a custodian of the city and its people, unlike its role in the past. You can see a piece of the Berlin Wall on display in Cape Town.

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golf club, artist's brush, feather, ice-cream bar, kite, pen, hoe, shovel, slice of pie, carrot, nail, closed umbrella, frying pan, funnel, crayon, slice of cake, safety pin, spatula, mug, pencil, pliers, candle, mitten, spoon, pushpin, ring, open book



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Illustrated by Charles Jordan

Solutions on page 47.



The crowning jewel of South Africa

The Kruger National Park

I can't imagine a more beautiful landscape. This is how the world must have looked years ago, before we started cutting up every piece of land, pushing the animals out and putting up fences around our buildings.

I'm in the Kruger National Park, one of the largest conserved pieces of land in the world and a place which embraces the most of our natural heritage. It is famous all around the world for its sheer size, beauty and biodiversity, especially the Big Five.



When people around the world think of South Africa, they imagine vast unspoiled wildernesses, abundant herds and awesome predators. It may come as a shock to realise how little of South Africa actually looks like that and how much the conserved lands and animals that live in them are under pressure.

The lay of the land

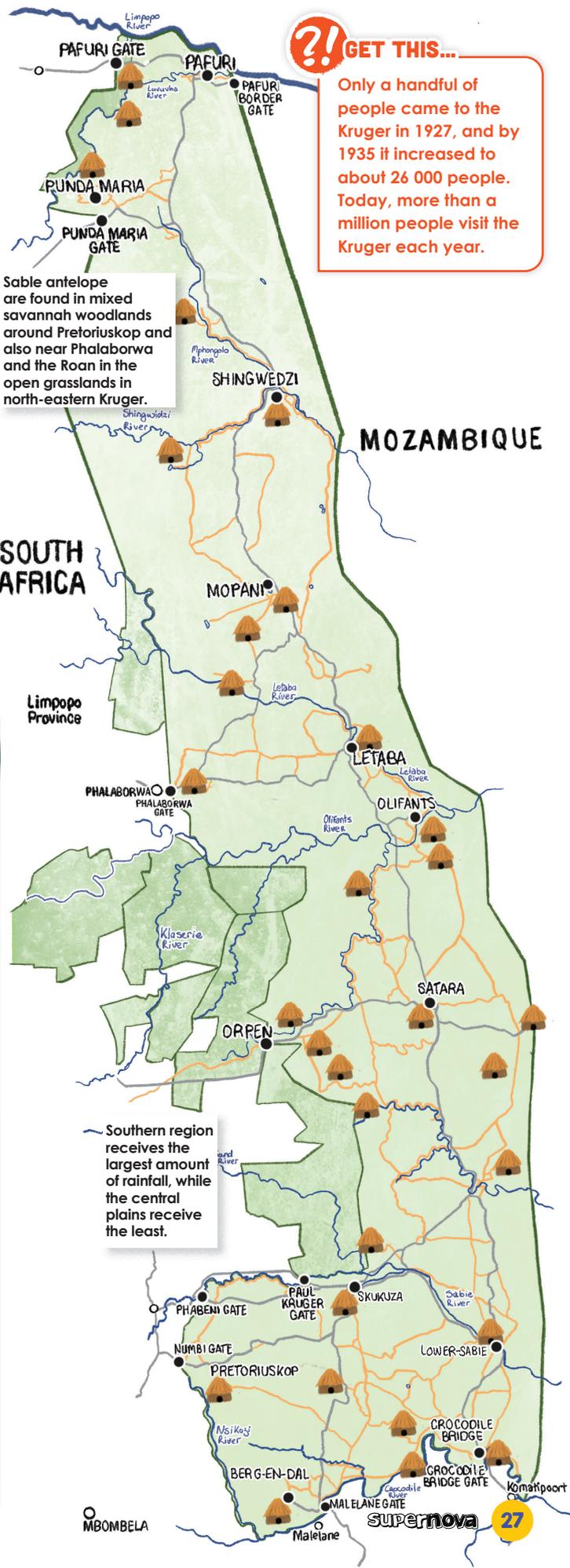
The surface area of the Kruger is 19 633 km², situated in Limpopo and Mpumalanga. The Lebombo mountains form the eastern boundary of the park with Mozambique. The Limpopo river, and South Africa's border with Zimbabwe form the northern boundary. Seven major rivers flow through the park.

Ancient people and modern times

The Kruger is steeped in history. It offers evidence of life from the Earlier, Middle and Later Stone Age periods. Rock paintings confirm that San people lived in the area from about 20 000 years to 150 years ago. There are almost 254 known cultural heritage sites, including about 130 recorded rock art sites, and more than 300 archaeological sites in the Kruger National Park.

A brief history:

- 1895** - Jakob Louis van Wyk first introduces the idea of creating a game reserve to the Volksraad (parliament).
- 1898** - Paul Kruger proclaims the Sabie Game Reserve an area where hunting is restricted.
- 1902** - James Stevenson-Hamilton becomes the park's first warden. He believes that the park is not just a conservation area but has tourism potential.
- 1926** - The National Parks Act is proclaimed and the Sabie and Shingwedzi Game Reserves merge into the Kruger National Park on 31 May.
- 1927** - The first motorists enter the park for a fee of one pound (about R18 today).
- 1928** - Basic tourist amenities are built.
- 1929** - 617km of tourist roads are completed.
- 1934** - There is not enough accommodation to meet the demand. 1 200km of roads are completed.
- 1959** - The park's boundaries are fenced off from neighbouring countries.
- 2002** - The Great Limpopo Transfrontier Park is established, which includes the Kruger National Park in South Africa, the Gonarezhou National Park in Zimbabwe and the Limpopo National Park in Mozambique.



Most diverse of South Africa's parks

The park features the Big Five and the Little Five, not forgetting the Shy Five, or even those considered to be the Ugly Five. A cool 150 mammals, about 120 reptiles, and more than 500 bird species call the Kruger home. That is an incredible diversity, without even counting insects and plant species.

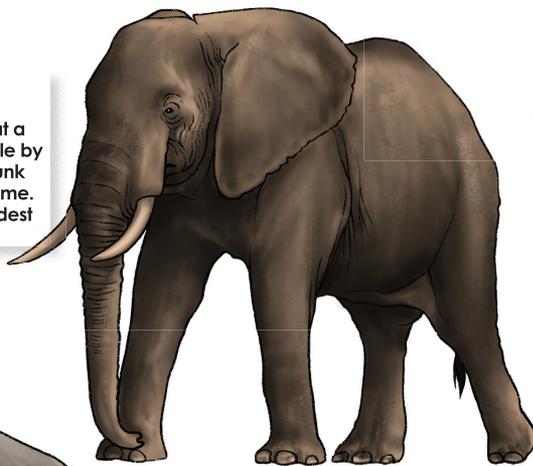
The Big Five and Little Five

Buffalo
Its primary predator is the lion. Buffalo are almost exclusively grazers, and half the Kruger population is found on the open savannas of the Central Region. An adult can weigh more than 750 kg. They may look docile, but they are known to be bad-tempered and unpredictable.



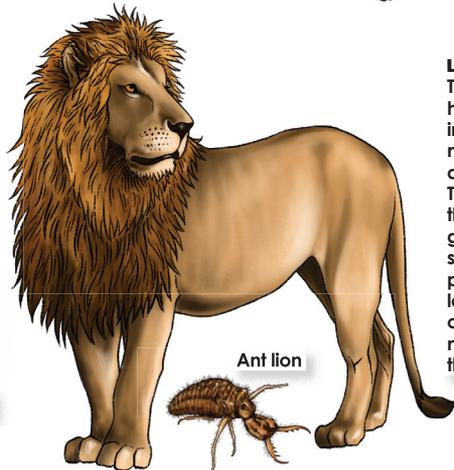
Buffalo weaver

Elephant
Elephants are the largest land mammals. They communicate at a very low frequency, undetectable by the human ear. An elephant's trunk can draw 17 litres of water at a time. Elephant herds are led by the oldest female, called the matriarch.



Elephant shrew

Lion
The mane protects the head and neck from injury and deters rival males by making the lion appear more formidable. The darker a lion's mane, the older he is. They are great hunters but will also scavenge food from other predators. The lion is the largest species of big cat on the continent and the most social cat species in the world.



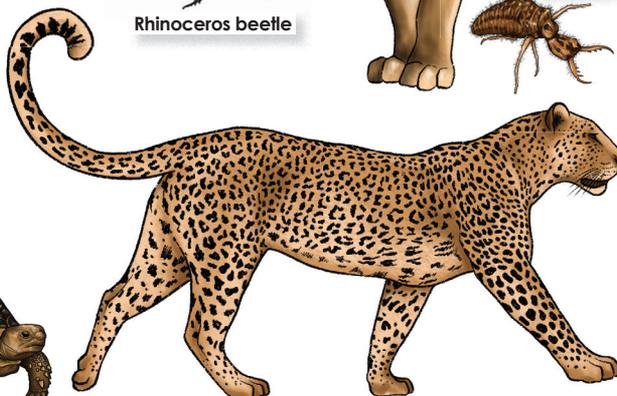
Ant lion

Rhino
Rhinos have excellent hearing and sense of smell, but very poor eyesight. The rhino is the most endangered species of the Big Five. The black rhino has a hooked lip, suited to browsing, while the larger white rhino has a wide, square lip adapted to grazing.



Rhinoceros beetle

Leopard
The most secretive of the Big Five, the leopard is an excellent tree climber that stores its kill in trees where lions and hyena can't reach them. They are also good swimmers. Impala make up 78% of the leopard's diet in Kruger.



Leopard tortoise



The Ugly Five



Warthog



Wildebeest



Hyena



Marabou stork



Vulture

The Shy Five



Porcupine



Bat-eared fox



Meerkat



Aardvark



Aardwolf

Reptiles

118 reptiles species inhabit the Kruger.

Nile crocodile

(*Crocodylus niloticus*)

Groups of crocodiles are known as floats when in the water, and on lands, groups are referred to as 'basks'.



Iguanas

The rock monitor (*Varanus albigularis*) and the water monitor (*Varanus niloticus*) occur in the Kruger. Water monitors are the main predators of crocodile eggs.

54 snake species are at home in the Kruger. So, watch your step! Fortunately, only nine are poisonous.



Mozambique spitting cobra

(*Naja mossambica*)

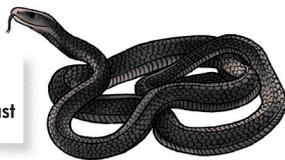
They 'spit' venom up to 3 metres in defence.



Puff adders

(*Bitis arietans*)

They are responsible for the most snake-related human deaths in Africa.



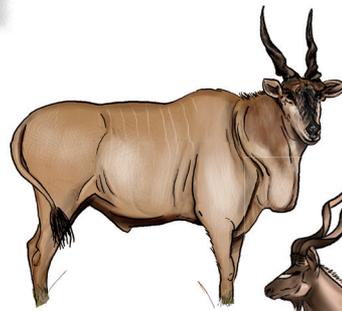
Black mamba

(*Dendroaspis polylepis*)

This deadly snake moves fast and can reach 11km/h.

Antelope

21 of the 72 African antelope species occur in the Kruger. There are smaller, solitary buck (like the bushbuck and steenbuck) as well as large herds of social antelope (wildebeest and impala). Impala is the most common antelope species found in the Kruger. You will be lucky to spot rarer antelope, such as sable, eland and the fastest buck in the world, the tsessebe.



Eland

(*Taurotragus oryx*)

The largest buck in the world, only about 300 occur in the Kruger.

Kudu

(*Tragelaphus strepsiceros*)

Bulls have the longest horns in the Kruger.



Nyala

(*Tragelaphus angasi*)

Males have white nose bands, shaggy coats tipped with white and light legs.



Waterbuck

(*Kobus ellipsiprymnus*)

It is the only African species with a white ring around the rump.



Steenbuck

(*Raphicerus campestris*)

It is the smallest antelope in the park and commonly seen in the open plains.

Birds

There are over 500 bird species.

Marabou

(*Leptoptilos crumeniferus*)

It is a large, not-so pretty bird, with an enormous wingspan of 2,6 metres and a height of 1,5 metres. Just like vultures, the bald heads of these scavengers are an adaptation to feed on carcasses.

Kingfishers

They are usually colourful and easy to spot. But not all of them fish. Some feed on reptiles, birds or insects.

Southern Ground Hornbill

(*Bucorvus leadbeateri*)

It's the largest hornbill species in the world, and although they can fly, they are mostly seen foraging on the ground. Ground hornbills do not drink water but get moisture from their food.



Pressure on the Kruger

The Kruger may be one of the world's biggest protected areas, but it faces a lot of challenges:

- **Poaching:** People from communities outside the park come into the park to hunt for bushmeat and also rare animal parts, like rhino horn.
- **Human development:** Outside the park there are farms and rural communities who come into conflict with animals that escape.
- **Climate change:** This causes more extreme weather, more droughts and more flooding as well as extinction and loss of biodiversity.
- **Pollution:** Rivers are polluted by mining and sewage leaks upstream.
- **Over-commercialisation and irresponsible tourists:** Some people don't know how to behave! They litter in the park, feed and hurt animals.

?! GET THIS...



James Stevenson-Hamilton

Born in Scotland and not wanting to return to England after the Boer War, James Stevenson-Hamilton was appointed as the first warden of the Kruger. Not quite knowing what was expected of him, he soon became a force to be reckoned with. He clamped down on poachers and protected the Kruger from development and agricultural use. I am grateful for his vision of tourism in the park! He was called 'Skukuza', which is Shangaan for 'he that sweeps', because of his fight against poaching. It is also said that it reflects the Tsonga's bitterness at being removed from where they stayed.

People in the Kruger

Rangers spend most of their working lives in the bush. What a life! But it is a tough job and requires skill, knowledge and guts. These people are tasked with the conservation of not just animals and veld, but of humans' well-being.

The Black Mambas all-female anti-poaching unit

The Black Mambas are a group of women who have taken up the call to defend the park and its animals from an onslaught of poachers. These courageous rangers brave the bush and risk their lives every day, monitoring 126km of the park boundary looking for holes in the fence or evidence of poaching. They are true South African heroes!



Visiting the Kruger is a lasting memory. Whether you self-drive, go on a safari or undertake a daring, guided walk. You will feel the warmth on your skin, smell the scents of the bush, become aware of the shifting silence and feel your blood pulsating to the ancient rhythm of nature.

Heed the call to quiet your mind and merge with your surroundings. And wherever you go, take the Kruger with you.



Next time you are in the bush, take some plaster of Paris with you in your backpack and make an awesome footprint paperweight.

MAKE A FOOTPRINT PAPERWEIGHT

WITH PLASTER OF PARIS

First, find a paw-print in the mud.



Look near a stream or lake or on a path after the rain.



Next, make a cardboard circle loop.



Cut a long strip of cardboard.



Tape the ends together to make a loop.

Mix your plaster of Paris.



Mix a cup of plaster with half a cup of water.



Stir well.

Make your mold.



Place the loop around the footprint.



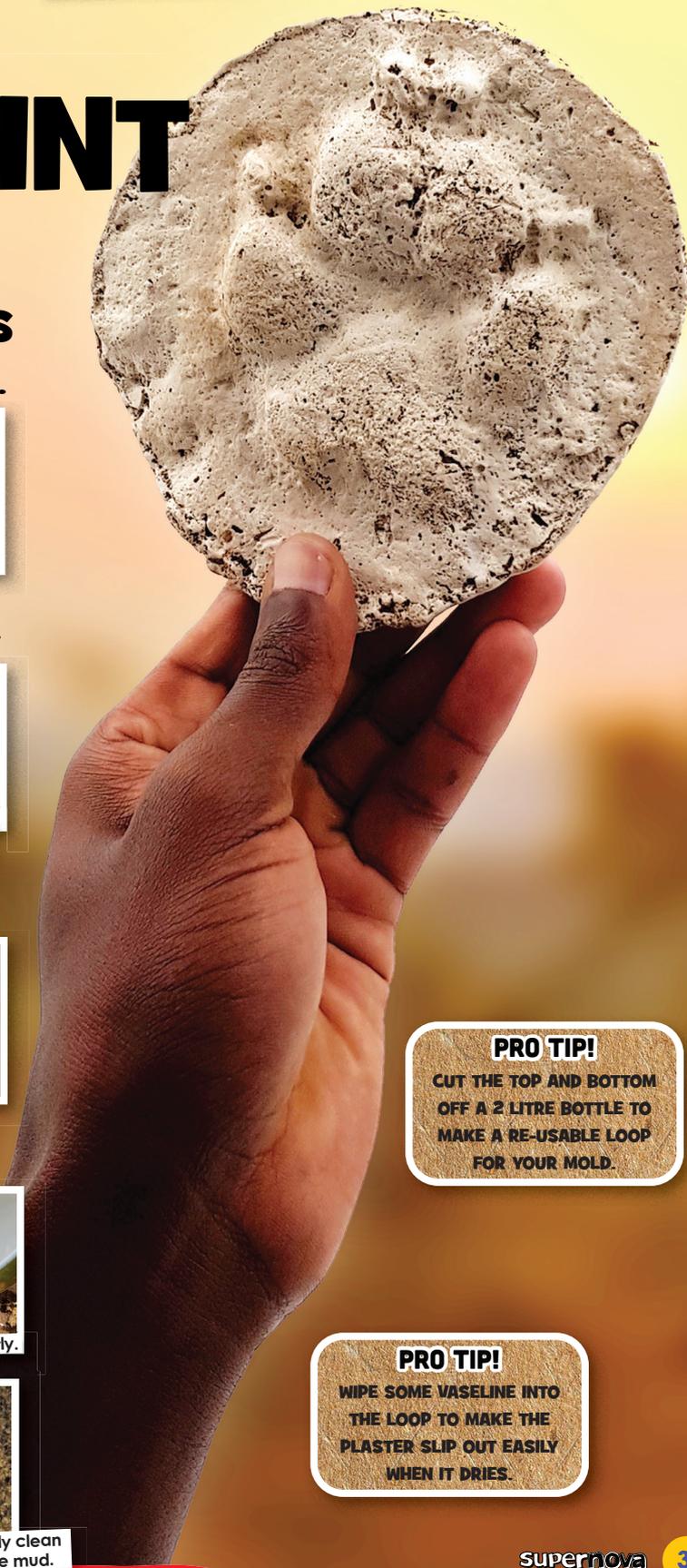
Pour the plaster in gently.



Let it dry for an hour or two.



Gently clean off the mud.



PRO TIP!
CUT THE TOP AND BOTTOM OFF A 2 LITRE BOTTLE TO MAKE A RE-USABLE LOOP FOR YOUR MOLD.

PRO TIP!
WIPE SOME VASELINE INTO THE LOOP TO MAKE THE PLASTER SLIP OUT EASILY WHEN IT DRIES.

THE NEW SPACE RACE... JOURNEY!

A close-up, high-angle photograph of an astronaut in a white space suit, floating in space. The astronaut's helmet is prominent, and the suit is detailed with various straps, buckles, and equipment. The background is a dark, starry space.

*"It's no longer a race,
it's a journey for
everyone!"*

Words by Jim Adams

Design by Alexander Moolman

Fifty years ago, the world held its breath, as United States astronauts Neil Armstrong and Buzz Aldrin descended in the Apollo Lunar Module to the surface of the moon, while Mike Collins orbited in the Command Module above. It was a daring feat that changed history. Never before had human beings visited anywhere but Earth! It took enormous rockets and hundreds of thousands of people to send three men to the moon.



The late 1950's and the 1960's were competitive times. The Soviet Union (now called 'Russia') had lofted Sputnik and Yuri Gagarin into orbit, the US had responded with Explorer 1 and Alan Shepard, touching off a 'Space Race'. In the 1960's, space was a frontier that was viewed as a place where one nation might be able to dominate another. But Apollo 11 changed that, the US won and ended the race!

South Africa played a significant role in helping the Apollo missions get to the moon and back. NASA had chosen South Africa to set up a Deep Space Network communication station, with a 26-metre antenna at Hartebeesthoek. This enormous antenna received radio data from the astronauts' flights to the moon and many other unmanned spacecraft. You can still visit that antenna today. It's part of the HartRAO radio astronomy complex, just outside Johannesburg.

Slowly, the world began to see space as a destination for everybody. Humanity could explore space together for the benefit of everyone. So this year, we not only celebrate the 50th anniversary of the first human landing on the moon, but we recognise that no less than 15 nations have joined together to establish a permanent presence in space. The International Space Station overflies most of the globe and has been established as a place for peaceful collaborative science and research.



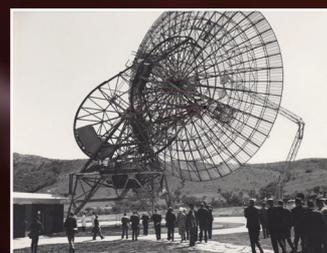
Apollo 16 Astronaut Charlie Duke left his family photograph on the surface of the moon.

▲ Yuri Gagarin was the first human to journey into outer space.



▲ An astronaut works on the International Space Station's 'S1 truss' during a spacewalk to conduct repairs.

▶ The 16 tonne Hartebeesthoek antenna under construction





THE MOON

There are moonquakes on the moon just like earthquakes on Earth.



The coldest spot in the entire solar system is on the moon, inside some craters that haven't seen sunlight in billions of years!

The moon is moving away from the earth almost 4cm per year! We are tracking it from the HartRAO facility near Johannesburg.

The tallest spots on the moon are higher than Mt. Everest and some craters are deeper than the Marianas Trench (deepest part of the ocean) on Earth.

Between 1969 and 1972, 12 men walked on the moon. When we go back in 2024, the team will include women.

Most scientists think the moon was made when an enormous asteroid the size of Mars collided with Earth about 3.8 billion years ago.

Because of the Apollo programme and the ISS, the world enjoys a big commercial space industry ranging from research and communication to tourism and, eventually, mining. Just about every nation has a space programme! What is possible is only limited by our imaginations.

In more recent news, NASA has announced that the US will return to the moon in 2024 in a mission to the moon's South Pole. The new project is called 'Artemis' and will go in two phases. First, beginning in 2020, we will send robots to scout out the best landing sites and help us understand what the conditions are before we send astronauts. In 2024 we'll send humans to return to the moon for the first time since 1972. In Phase 2 we will begin sending people and supplies to the moon, with a goal of every six months and the intention to stay, to make our presence on the moon sustainable! Commercial companies are already planning to send their own robots and astronauts to help NASA and the other countries with construction, mining and even tourism! It's no longer a race, it's a journey for everyone! When we return to the moon, and eventually Mars, we will go as collaborators not as competitors.

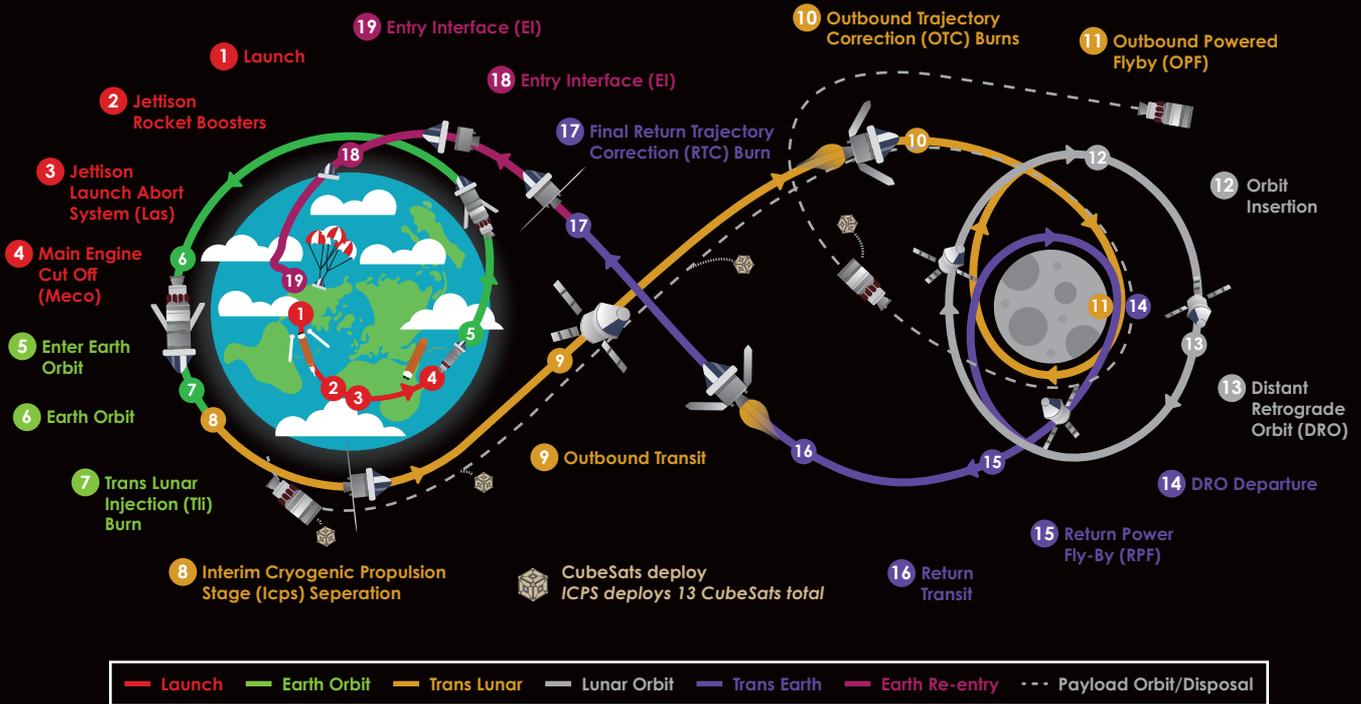
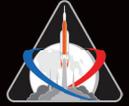
Mark Shuttleworth, the world's first space tourist, said "I don't expect my flight to produce a generation of astronauts and cosmonauts back home, but I hope it will encourage people to pursue their dreams." I dream of moving our permanent presence from Earth's International Space Station to the moon and Mars... in my lifetime. And then to the stars as mankind becomes interstellar.



▲ Astronaut Edwin E. Aldrin Jr descends the ladder of the Apollo 11 lunar module

ARTEMIS I

“First, beginning in 2020, we will send robots to scout out the best landing sites and help us understand what the conditions are before we send astronauts.”



To do this we need a generation of visionaries, engineers, scientists and explorers from more than just 15 nations, but rather, from around the globe. All seeking to move us forward, upward and outward. Perhaps you might be one of the many people that will help planet Earth explore space!

As Nelson Mandela said, “It always seems impossible until it’s done.”

Let’s go do it.



Jim Adams is a retired NASA Deputy Chief Technologist. Jim worked in the Office of the Chief Technologist which is responsible for managing NASA’s space technology programmes, among others.

Jim Adams wrote about the Scientific Method in Supernova 8.2

Making Sense of Smell

Words by Devin Oelofsen

Design by Kerry Moolman

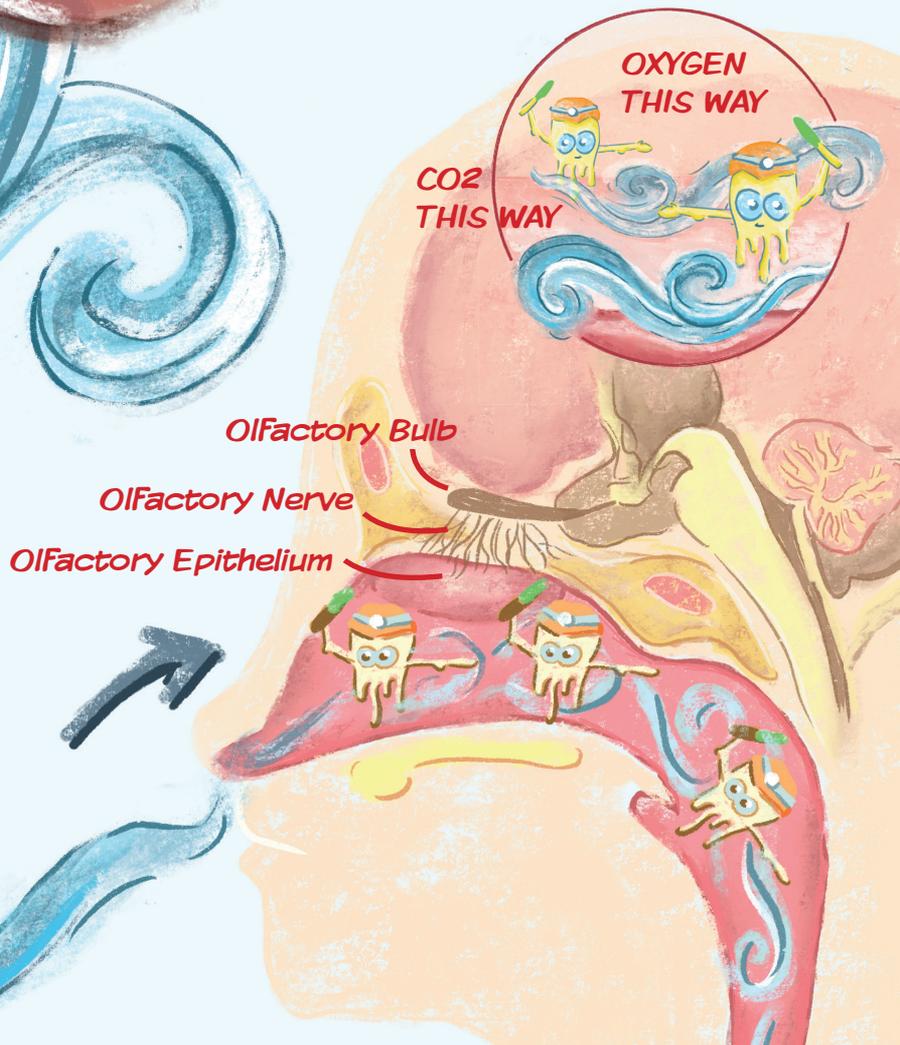
To smell or not to smell? Now that's a question! As one of the five senses, you would think that smelling was a pretty straightforward job. But in reality, the olfactory system is quite a complicated function that we're still learning to understand. With a sense of smell as unique as your fingerprint, this fascinating sense is worth taking a closer sniff at.

The nose and how it works

How would we ever be able to smell if we didn't have a nose? We definitely can't do it with our feet!

The nose has two nostrils, also called 'nasal passageways', that allow the air you breathe to move in and out of your nose. And that wiggly wall of skin and cartilage between your two nostrils, that's called a 'septum'. This is the part that is damaged when someone breaks their nose!

When we breathe in, air moves through our nasal passageways into the nasal cavity. This is the space that connects to our throat and trachea, which in turns takes air to our lungs. But the nasal cavity doesn't just help air move in and out of our lungs, it is the home of our sense of smell.

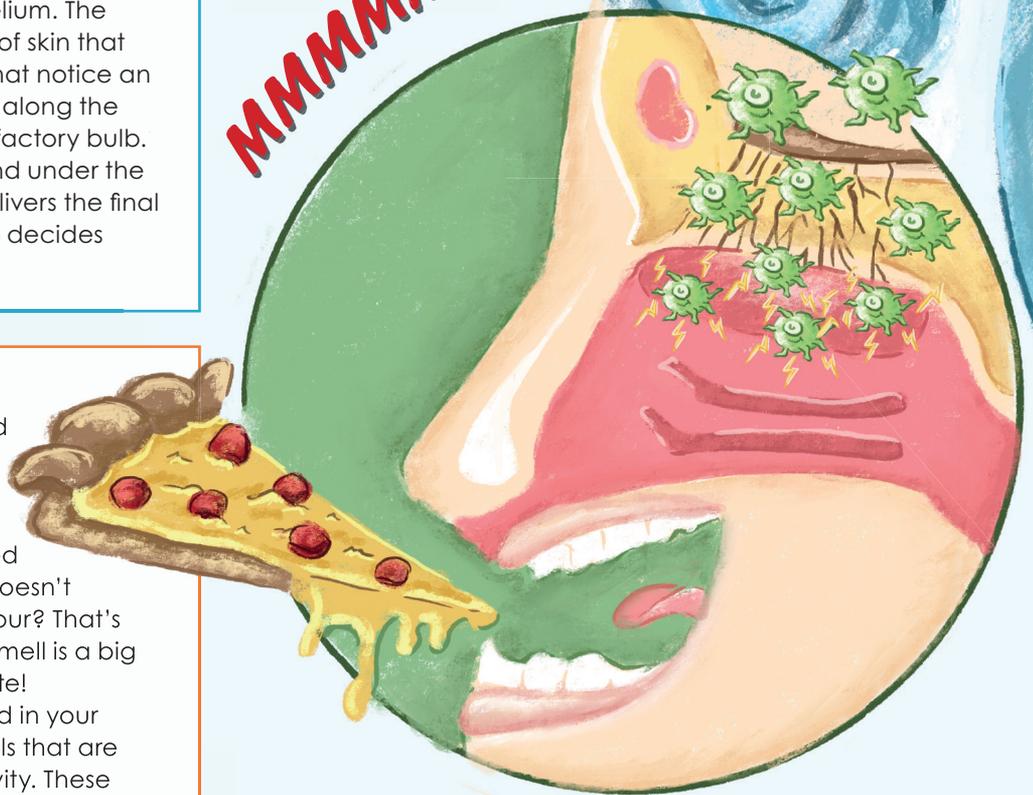


From burnt toast through to your mom's perfume, the olfactory system sends odours to the brain just like a letter is delivered through the post. Odour molecules are carried into your nose with the air you breathe. Inside the nasal cavity, the air moves over the olfactory epithelium. The epithelium is a soft layer of skin that contains tiny receptors that notice an odour and send a signal along the olfactory nerve to the olfactory bulb. The olfactory bulb is found under the front of the brain and delivers the final message. Our brain then decides what we are smelling.

Smell and taste

Have you ever wondered why when you smell certain scents you can also taste them? Or that when you have a blocked nose, the food you eat doesn't seem to have much flavour? That's because being able to smell is a big part of being able to taste! When you chew, the food in your mouth releases chemicals that are sent up to your nasal cavity. These chemicals trigger the olfactory epithelium to send a message to the brain, just like it does with any other smell. It's all about teamwork from then on, as your brain, along with your taste buds and olfactory receptors work together to create the flavour of the food you are chewing.

MMMMMM PIZZA!



TEST THE THEORY:

Try holding your nose closed the next time you chew something. You'll still be able to taste, but the food won't have nearly as much flavour. Don't hold it for too long though!

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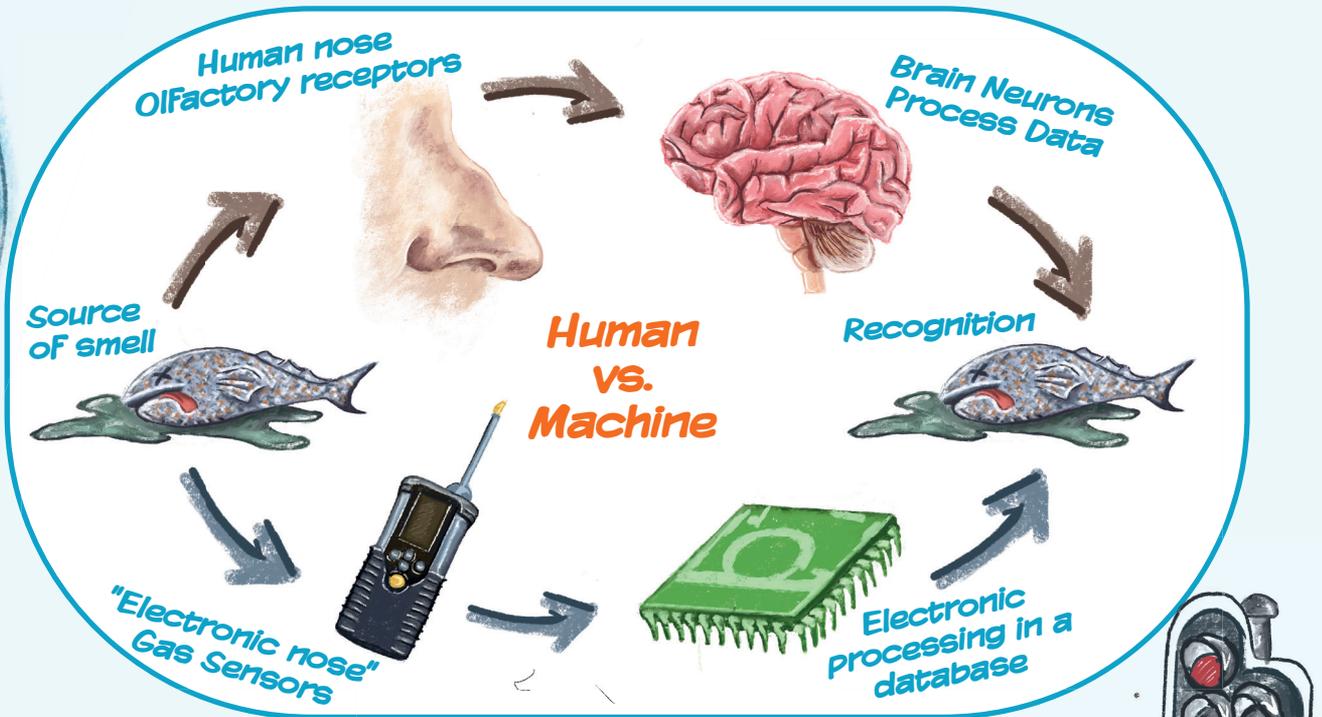
A nose is not only for smelling... it's also a superhero! It protects our lungs from all sorts of harmful germs. Snot, along with the tiny hairs in your nose, help filter the air you breathe by trapping germs and unwanted particles. Once trapped, your nose gets rid of these evil villains in one of two ways, either by sneezing or creating boogers.



SMELL AND TECHNOLOGY

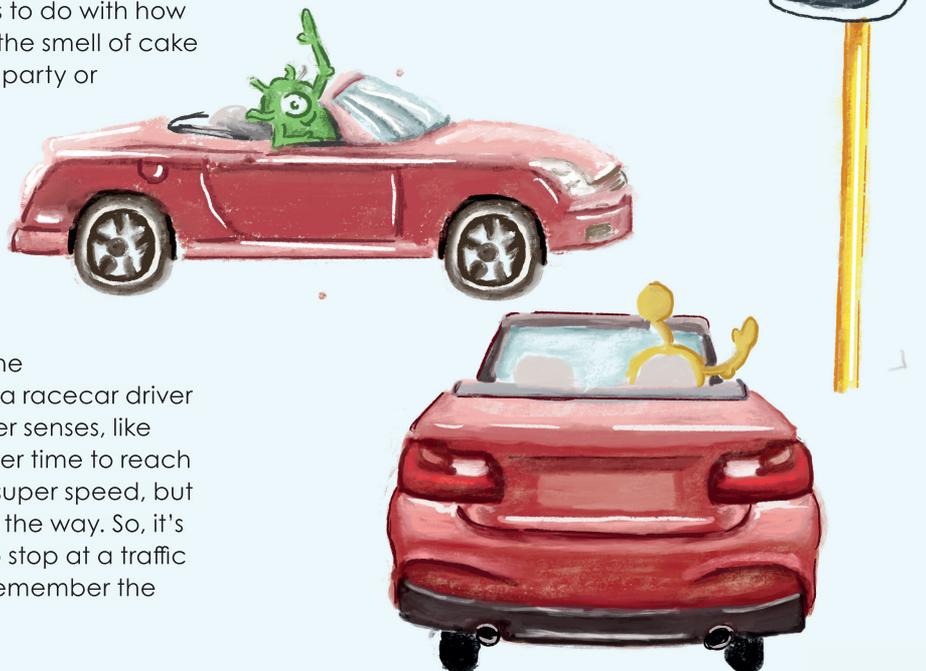
Imagine sitting in a cinema and being able to smell the things that you see on the screen or having a phone that can let you smell food before you order a takeaway. Sounds crazy, right? But, is it? Say hello to 'digital scent technology'. This technology is engineered to sense, transmit and receive scent-enabled digital media. This means that one day, things like your phone, computer or video games may be able to smell!

The idea is to use an 'electronic nose'. This is a device that can detect odours by mimicking the human nose. Similar to nostrils, a sample delivery system will allow odours to move through the electronic nose while a detection system, similar to the olfactory epithelium, will pick up the chemicals in the odour. A computing system, just like our brain, will then decode the chemicals that make up the odour and display what it is 'smelling' on a digital screen.



SMELL AND MEMORY

Out of all our senses, smell has the strongest connection to our memories. This has to do with how odours are sent to our brain. It's why the smell of cake makes you think of your last birthday party or how the smell of popcorn reminds you of that time you went to the movies with your friends. As odour molecules move through your nose, a direct message is delivered to multiple parts of your brain at super speed. This means that more parts of your brain get a chance to identify the smell and store it to memory. It's as if a racecar driver is delivering your mail. But all the other senses, like touch and sound, take a slightly longer time to reach your brain. Messages are still sent at super speed, but they have to make more stops along the way. So, it's more like a racecar driver that has to stop at a traffic light. This means the brain does not remember the sense as intensely.



Well, that's smelly!

Although we all have a nose, not everyone smells the same things in the same way. Just take a look at the phenomenon of asparagus pee. Some people have the strange experience of having a particularly odorous pee after eating the vegetable, while others don't even notice a change. This is because some people have a mutation in the receptors in their nose that stops them from noticing the bizarre smell. And, while some can't smell strange things, others can smell them all too well! Some folks are super sensitive to the natural fatty acid, butyric acid. This tangy smelling chemical is found in both parmesan cheese and vomit. That would explain why some people really can't stand stinky cheese!



?! GET THIS...



Just like a fingerprint, every person has a specific scent, known as an 'odortype'. In the future, scientists believe that they may be able to use these unique scents to identify people.

Anosmia

Known as the inability to perceive odour, individuals with this medical condition can't smell. Some are born with the condition while others lose their sense of smell from an illness or after being in an accident. It's not always permanent but can be a shocking experience for someone that could once smell perfectly well!

?! GET THIS...

The word 'olfactory' is used to describe anything related to the sense of smell.



There's a lot more to smell than just your nose. While it may be a sense that you could live without, would you ever want to? Whether it's good smells, bad smells, stinky smells or just a plain old smelly smell, it's fair to say that the world wouldn't make much sense without our sense of smell!

When Nature Takes Over

Words by Caitlin Brown

Design by Alexander Moolman

We humans make a huge impact on the earth's health, and the negative effects are outweighing the positives. How do we fix that? We leave areas alone so nature can heal.

Let's take a journey, where we look at places around the world where nature has taken over.

A CATASTROPHIC MISTAKE

UKRAINE

Chernobyl is notorious for being one of the worst nuclear disasters in history. Human error caused an explosion and a radiation cloud that spread, affecting quite a bit of Europe. It made the town of Pripyat and the Exclusion Zone, about 30km surrounding the site, uninhabitable.

After the explosion, the town's residents were permanently evacuated. This ghost town has stayed mostly unchanged. However, this happened in 1986, so everything left behind has aged or rusted. You can still see empty classrooms with textbooks and notes on desks, bumper cars that cannot move and vending machines that will never dispense another soda ever again.

Though no one lives here because of the radiation levels, there are still plants growing all over. Despite the radiation levels, animals are flourishing, because we are not there to interfere. Scientists have found that several species of birds and mammals are thriving. Without us there, these animals have a far bigger territory to roam in.

If you are a brave soul, you can always go visit Chernobyl, but there are obviously safety guidelines you will need to follow on that tour!



UTTERLY DESERTED

NAMIBIA

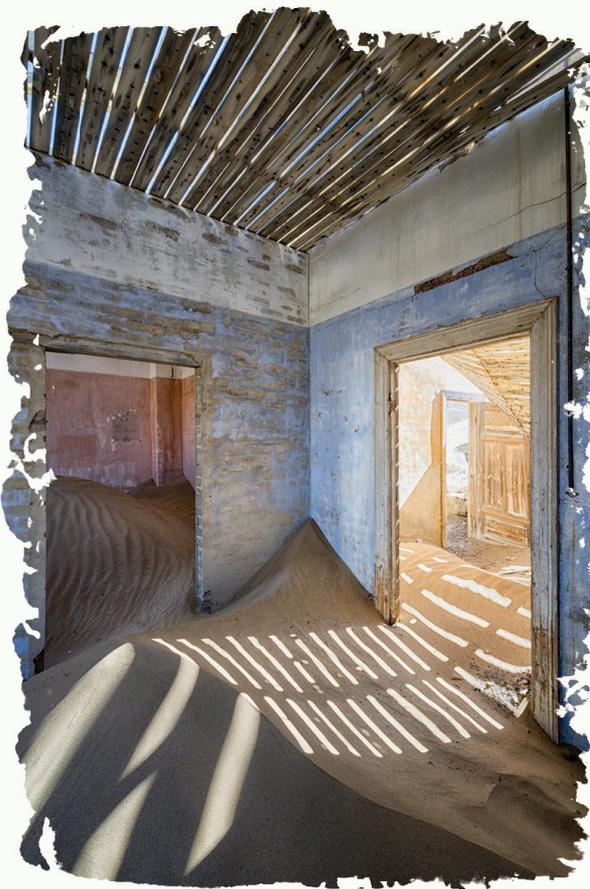
Kolmannskuppe (or *Kolmanskop*) is a ghost town located in Namibia. The spelling of the name has changed slightly from when it was a German colony. It has been taken over by the desert. The desert is forever expanding. It happens when the wind blows the sand all over, there is a change in climate. We help this along by taking resources out of the earth, which dries out the soil.

In this case, it began when Zacharias Lewala found a diamond. That began the diamond rush of 1908. People rushed there in droves to seek their fortune. The town was built to look like one you would find in Europe. It had many amenities, like a bakery, a theatre and a hospital. Residents created stunning gardens for their beautiful homes, watering them with water brought in from Cape Town!

At its peak, it was prosperous and life was great. So, the town's people kept the desert back, literally shovelling sand, in order to keep the town looking wonderful. Then the diamond price went down.

Diamonds were discovered elsewhere and people abandoned the town. The desert moved in and hasn't stopped. The strong winds continue to blow sand particles toward the town, so it is being worn away, slowly but surely. Now all that's left is a decaying reminder of what a gem it used to be, and a museum full of memories.

If you want to visit, you'll need a visitor's permit to get into the *sperrgebiet*, a leftover of what used to be diamond central.



AN EERIE TOURIST ATTRACTION

INDONESIA

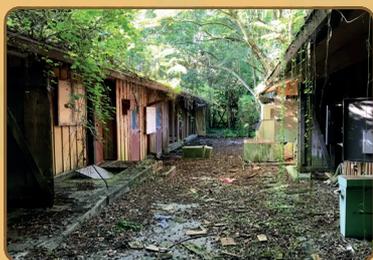
Rumoured to be haunted by the ghosts of the workers that died while building it, the Ghost Palace Hotel, or the PI Bedugul Taman Rekreasi Resort and Hotel, has that creepy feeling of an empty building with just you in it. That's because it is utterly empty. Strangely, this hotel was never officially open for business, but the reason for this is a mystery that has not yet been answered.

If you visit this creepy tourist attraction, your voice will echo, you'll walk through puddles, trip over vines and feel the breeze come in through open gaps in windows, doors or passages leading to the outside. You might feel something brush on your neck or over your hair as you walk under the plants crawling in from the ceiling. Or you'll turn into a warrior battling unseen enemies as you walk through a spider web.

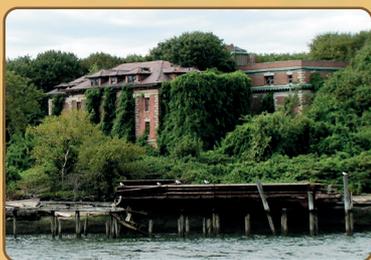
This place shows you that, even if millions of rands are spent, nature, when given enough time, will come back to claim the space that we've stolen.



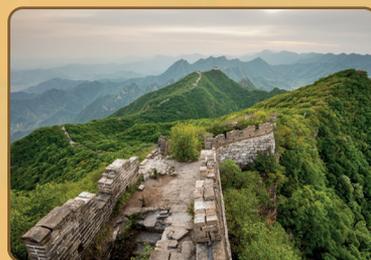
NATURE ALWAYS FINDS A WAY



Walt Disney World's Discovery Island
Bay Lake Island, located in the middle of Disney World, began losing popularity and now lies abandoned. It is a forbidden sight where anything could be lurking in the trees above you or in the water below.



North Brother Island - New York
Originally a hospital and later a house for World War II veterans, it has now been left empty. It is protected by New York City Parks because of the many species of birds that have made it their nesting grounds.



The Great Wall of China
This heritage site is about 20 000 kilometres long. It would cost a lot of money for the entire wall to be kept pristine in the battle against nature. In the older, less visited sections of the wall, nature is winning.

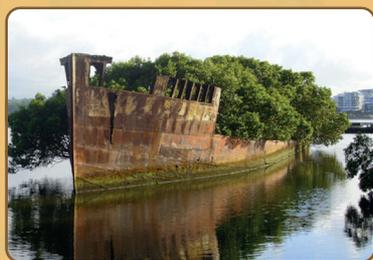
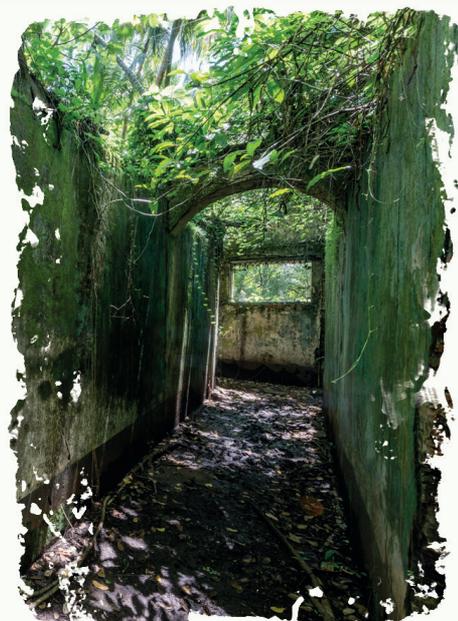
FROM PRISON TO PARADISE

ISLAND IN FRENCH GUIANA

Devil's Island... sounds frightening, doesn't it? Looking at the island from a distance, it looks like an island paradise. Well, for the 70 000 to 80 000 prisoners taken there, it wasn't.

It is one of the three *Îles du Salut* (Islands of Salvation), in French Guiana. Though it is named for saving people, it was actually a place where thousands of prisoners died. Looking at the prison today, you can see why. The cells are horribly small and lacking sunlight. The prisoners had to stand up all day and were also forced to help build the prison, all while the guards kept watch.

Now that trees and plants have taken over the prison, it has become hauntingly beautiful. It's interesting to note that other businesses which tried to start up there were never able to... yet another reminder of what horrors we are capable of, and how nature can soothe and heal itself.



The Floating Forest

The SS Ayrfield was left to decay when the wrecking yard there closed due to World War II. Now, Mangrove trees call it home.

Never underestimate
the power of nature.
It was here long
before we were and
will be here long after
we are gone.



RUGBY

★ CHAMPIONS ★

South Africa is the 2019 Rugby World Cup champion! It's one for the SA history books, but here's what you need to know about some of the top rugby teams that took part.

The Rugby World Cup is an international rugby competition that has been taking place since 1987. Even though different teams qualify every year and the results are different every year, there are a few teams that have proven themselves formidable over the years. Here's the low-down on some of these teams and how you can recognise them on the field.



JAPAN

Known as:
The Cherry Blossoms or Brave Blossoms

Colours:
White and red

Emblem:
The cherry blossom or Sakura



Why?
The Sakura is an important symbol in Japanese culture. It was used, for example, in WWII to motivate the Japanese people.



AUSTRALIA

Known as:
The Wallabies

Colours:
Green and yellow

Emblem:
The Wallaby



Why?
The Australian rugby team chose to be called the Wallabies in 1908 after the British press labelled them the 'rabbits'. The team found the wallaby to be a more suitable emblem, since rabbits were seen as invasive pests.



ARGENTINA

Known as:
Los Pumas

Why?
Los Pumas is Spanish for 'the pumas'. The name dates back to 1965 when a South African journalist mistakenly identified the jaguar emblem as a puma in his article.

Colours:
Sky blue and white

Emblem:
Jaguar





WALES

Known as:

Wales rugby team, sometimes nicknamed the 'Dragons'.

Why?

The dragon has been a symbol of Wales for hundreds of years, dating back to the 5th century. It symbolises power and authority.

Colour:

Red, green and white

Emblem:

The Prince of Wales's feathers



NEW ZEALAND

Known as:

The All Blacks

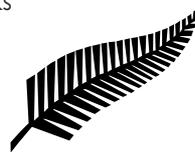
Colour:

Black

Why?

Black uniforms are worn by all the sports teams of New Zealand. This tradition comes from New Zealand's first Athletic Association championship in 1887.

Emblem: Silver fern



ENGLAND

Known as:

The Roses or Red-and-whites.

Colours:

Red and white

Why?

The white uniform was probably modelled after the uniform of the Rugby School. The free grammar school was established in 1567.

Emblem:

Rose



SOUTH AFRICA

Known as:

The Springboks

Colours:

Green and Gold

Emblem:

Springbok and protea

Why?

Paul Roos, the captain for the British tour, chose the springbok as a name and emblem for the South Africans to keep the British press from coming up with a nasty nickname for the team. Later, the protea was added so the rugby team would have the same emblem as the other SA sports teams.



If you followed the 2019 World Cup and wore your green and gold, you are a part of a proud nation today. We're truly #strongertogether!

Supernova was at

KidsCon Africa



We thought we'd tell you a little about our experience. The first thing we noticed was all the awesome cosplays! There were many kids and adults dressed as their favourite characters from every book, movie, comic or series you've ever heard of. Do you recognise any characters you know?

While there were many fantastic exhibitors there, we also saw the cosplay competitions, illustrators from around the world and people, like William Shatner and Daniel Gillies, who did photo ops, autographs and presentations.





Comic books, cosplayers
and competitive gaming...
we saw it all at Comic Con
Africa's KidsCon.



**Mischief
managed!**



Our Supernova helpers

We had an extra special exhibit!
It looked fun and vibrant and
attracted lots of new Supernova
readers. We met many new people
and were so encouraged by how
much everyone seemed to love
Supernova and Highlights magazines.

Were you at ComicCon and KidsCon
Africa this year? Send us an email
telling us about your experience to
mail@kidsmag.co.za to get featured in
an upcoming issue.

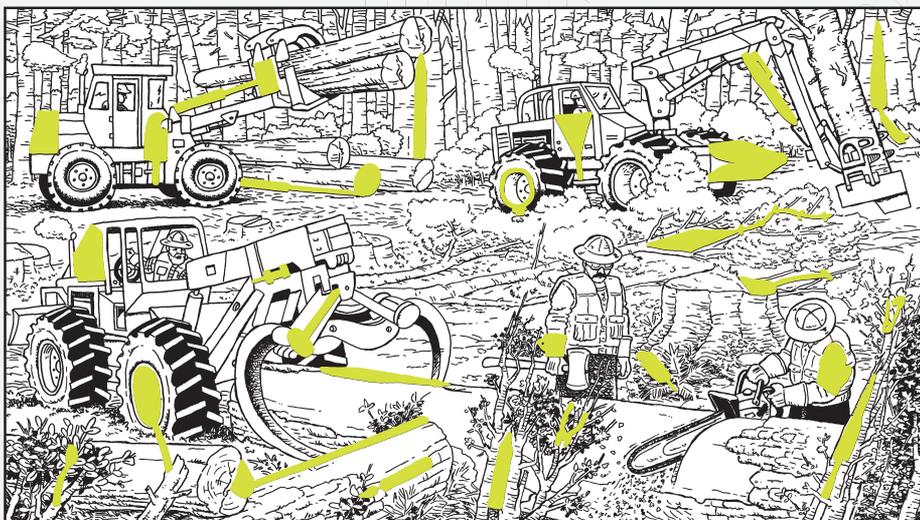


Check out our hoodies



KidsCon Warriors

**Solutions
Hidden Pictures**





Story and artwork
Maya LeMaitre

MIMI'S LIFE ON MARS

