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10 YEARS
Super
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The mag for curious kids



GIANTS OF THE ICE AGE

Vol
10.3



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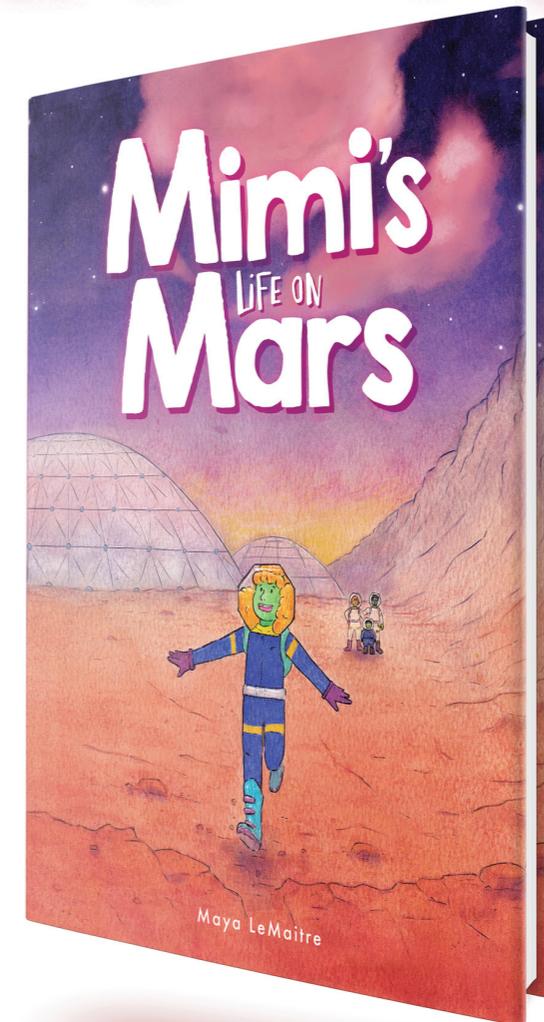


Story and artwork
Maya LeMaitre

MIMI'S LIFE ON MARS



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Hi SuperKids



Candice

Welcome to the first issue of 2022! New years are the perfect time for fresh starts and new beginnings. For some of us, that might mean trying some new things, starting at a new school, or learning some new skills. While some new beginnings are exciting and fun, others can be a bit more stressful!

During stressful times, it's important to remember to focus on yourself and not on the changing world around you. One of the best ways to do that is to step outside, spend some time with your loved ones, or just spend some time alone with a *Supernova* magazine.

In this issue, you call chill out with some of the giant animals that lived thousands of years ago during the Ice Age, discover all kinds of interesting creepy crawlies, and soak away your stress with the hilarious history of bathing. Just like always, *Supernova* is by your side through it all.

Stay curious, kids!

supernova

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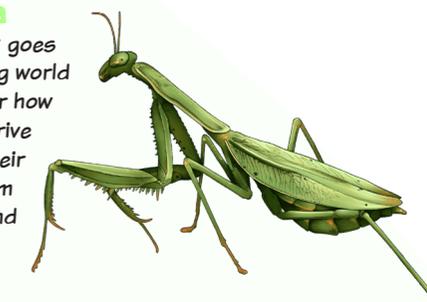
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The Features

28 **Bugs of Africa**
Ever wondered what goes on in the fascinating world of insects? Discover how these masters of disguise thrive in their ecosystems due to their phenomenal adaptations. From bites and stings, to poison and ultra-camouflage, let's see if you can keep up with these creepy crawlies!



33 **Make an insect hotel**

Got any empty tin cans lying around at home? Why not upcycle them and create an extra extravagant hotel for insects?! Then, marvel at all of the tiny guests that visit your garden!

34 **Giants of the Ice Age**
Throughout history, enormous fossils have been found that reveal the existence of some ancient giants. Often, we wonder how these colossal beasts could have shared the same spaces as us, and how they were able to live during some of the coldest periods ever. Just how much do you know about these giants of the Ice Age?



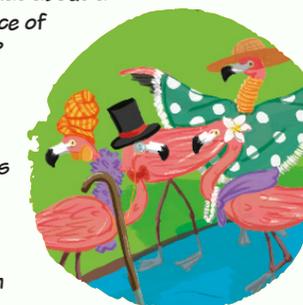
History of bathing

Ever wondered where the habit of bathing every day comes from? Hold your breath and dive in deep to the wonderful history of bathing! Read about the ways different cultures bathed in the past, the significance of being able to bath today, and answer the age old question: do we need to bath everyday?



Answers for Brain Games on page 48.

44 **Who's who in the zoo?**
I'm sure you have heard of a flock of birds and a pride of lions. But, have you heard of a bike of bees and a crash of rhinos? What about a flamboyance of flamingos? Discover some of the most outrageous animal collective nouns in the English language!



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Get to know the Supernova Team!



Nikita
Marketing and content

What's your favourite thing about being at Supernova?

That every day is different! This means I never get bored and I look forward to learning and something new every day.

Hey SuperKids! I'm Nikita! I help write, design layouts and proofread articles in Supernova, and pack the new issues once they're hot off the press for you to enjoy!

What's your favourite thing to do alone?

After a long day, I enjoy snuggling up with a good book or listening to music or a tv series while I colour in!

If you could meet anyone from history, who would it be and why?

I'd love to sit down with William Shakespeare and ask how he overcame writers block, if he can believe that we still study his work in today's day and age, and how his journey as a poet and dramatist began!

If you were a dessert, what would you be?

A yummy chocolate mud cake or baked cheesecake. I can't decide!

What's your favourite activity?

I love going on adventures and trying out new things with family and friends! Tasting new foods, visiting places and experiencing new cultures is fun!



Riding camels on the beach in Dubai with my sisters is one of my favourite memories!

This is Gizmo! I named him after the very cute mogwai from the 80s film, The Gremlins.

Looking for more?



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Ask Jules?



Jules

I've been buzzing to find out about this, thank you Luah! My short answer is no, bees are surprisingly not the only pollinators we have in the world. There's a long list full of pollinators out there which includes hummingbirds, moths, wasps, beetles, butterflies, and wait for it... bats! These pollinators are responsible for helping about 70% of all flowering plants to grow, including sweet honey, raspberries, peaches, plus avos, almonds, pumpkins and bananas! Most people don't know that pollinators provide about one of every three bites of food we eat. Sadly, pollinators are quickly disappearing because of habitat loss, climate change, pesticides, pests and disease, so be gentle when you come into contact with them! You can also help by planting a pollinator garden with native flowers that bloom across different seasons, and offering nesting areas to help pollinators thrive.

LUAH (8)
from Blouberg asked us:

Are bees the only pollinators?



Reader Corner

Awe-inspiring Artists

From pencils to paintbrushes, and chalk to markers, there are hundreds of ways to get creative and express your imagination through art! Some of our Supernova readers sent in their amazing creations and we just had to showcase them:

Zanna Timewell, age 11

Zanna's artwork was inspired by her exploration of different painting techniques. She created this painting for her best friend – how lucky!



Jules

Send your cool creations to supernova@bkpublishing.co.za and you could be part of our Reader Corner!



Johannes Gouws, age 16

Johannes told us a bit more about his inspiration behind his fantastic drawings:

1. This drawing was really just for the fun of it. I saw some drawings with people having televisions for heads and I thought it was a pretty neat idea! Also, I could display just about anything on the screen so I decided to make some features I couldn't really do on a normal person's face.

2. This idea came from a real building only a block away from my house. I wanted to do a one perspective type drawing, so I took a picture of the building while I was walking by and went home to put my own spin on it.

3. I had the idea for this in my head before I actually started drawing. Just like life, there are two sides: happy and sad. My favourite thing about this drawing is the character having Zam-buk as eyes. The pink cherry Zam-buk is on the happy side and the usual green Zam-buk is on the other.



Creature FEATURE



! Get this!

Scientists think these fascinating creatures are the earliest relatives of modern mammals! Recent studies show that they first evolved more than 112 million years ago, before the extinction of the dinosaurs.

Platypuses are interesting creatures for a number of reasons: they are egg-laying mammals, semi-aquatic, nocturnal and venomous! Platypuses are actually small, shy animals, with flattened heads and bodies to help them glide through the water. Their fur is thick and repels water to keep them warm and dry even after hours of swimming. But, the most remarkable feature of the platypus is their amazing snout. While it looks like a duck's bill, it is soft and covered with thousands of receptors that help the platypus detect prey. They scoop up insects, larvae, shellfish, and worms in their bill along the riverbed, along with bits of gravel and mud. All this material is stored in their cheek pouches and, at the surface, is mashed for consumption. Platypuses do not have teeth, so the bits of gravel help them to chew their meal.

Male platypuses are also venomous and have sharp stingers on the heels of their rear feet that they use to deliver strong toxic blows to any foe.

The view from up above



'Gold at the End of the Rainbow '

Photo by Phil De Glanville

Ever wondered what the Earth looks like from way up above? Well, now you know! These breathtaking photos are just a handful of the award-winning photos submitted to the Drone Photography Awards in 2021.

The annual awards invite thousands of photographers around the world to use helicopters, balloons, blimps, rockets, kites, and parachutes to take inspiring photos of their surroundings. The competition features categories like urban, abstract, sports, wildlife, and people. Our Photo Feed features the winning photograph for each category.

One thing is for sure, these elevated vantage points and views from the top teach us the importance of perspective. They also make for some extraordinary photographs!

DRONE
PHOTO AWARDS
2021

'Pink-Footed Geese Meeting the Winter'
Photo by Terje Kolaas

Winner: Photo of the Year

♡ 👁 🗑

On their way from Norway to their breeding ground in the Arctic, these migrating geese were snapped in the air by a waiting drone who knew their annual flight path. #justwingingit #coldandflewseason #goosebumpsorgeesebumps

'Poisoned River'
Photo by Gheorghe Popa

Winner: Abstract Category

♡ 👁 🗑

This detailed photograph showcases the sad ecological disaster of the Geamana village in the Apuseni Mountains, which was poisoned by chemical waste from the copper and gold mining process. #artisticprotest #downwithdischarge

'Metaphorical Statement About City and Winter'
Photo by Sergei Poletaev

Winner: Urban Category

♡ 👁 🗑

A 500-year-old monastery in Moscow is shadowed by a large and ominous power plant looming in the background. The steam from the cooling towers is particularly dense due to severe frost. #ageandbeautybeforepollution #blowoffsteam

'Fishing in Mangrove Forest'
Photo by Trung Pham Huy

Winner: People Category

♡ 👁 🗑

Starting your fishing day in the mangrove forest in the lagoon of Tam Giang looks very different during winter – the trees have lost all of their leaves and turned white! #unbe-leaf-able

'Back to Adventure'
Photo by Qasim Al Farsi

Winner: Wildlife Category

♡ 👁 🗑

After laying 100-125 eggs in a peaceful nest, this green turtle makes its way back to the ocean on the Oman coastline. #howegg-citing #shell-ebrationsallaround #offtocatchawave

'Extragalactic'
Photo by Marlin Sanchez

Winner: Nature Category

♡ 👁 🗑

This exclusive view of the inside of a volcano shows the intense and glorious moment of an volcanic eruption captured in Iceland. #volcanoesarerelavable #mountainfountain



John Williams

The composer nominated for the most awards

John Williams was born on the 8th of February 1932 in the small community of Floral Park on Long Island, New York.

Musical talent runs in John's family! His father, 'Johnny' Williams Sr., was a jazz drummer from Maine. John's brothers, Donald and Jerry, are also percussionists.

John started studying the piano at the age of six. He was so enthralled with music that he slept near his piano and practiced every day!

While he was in primary school, he learned to play the bassoon, cello, clarinet, trombone, and trumpet.

John joined the U.S. Air Force in 1952. There, he arranged, played, and conducted music for various military bands.

After serving in the Air Force, he returned to New York to attend the Juilliard School of Music, where he studied piano with Madame Rosina Lhevinne.

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After completing his studies, John moved to Hollywood. His rare ability to sightread quickly (meaning that he can read and play music from a sheet without any preparation) made him a perfect performer for film scoring (soundtrack) sessions.

John worked under legendary composers like Alfred Newman and Bernard Herrmann. Soon he was writing his own scores for television and then film.

He is best known for his soundtracks for movies such as *Jaws*, *Star Wars*, *Superman*, *E.T.*, *Indiana Jones*, *Home Alone*, *Schindler's List*, *Jurassic Park*, *Harry Potter*, and *Lincoln*. John has also composed music for all of Steven Spielberg's movies but three.

The Olympics are also a big fan of John Williams, as he has composed music for the 1984, 1988, and 1996 Summer Olympic games. He also composed music for the Special Olympics in 1987.

John has been nominated for 51 Academy Awards, six Emmys, 25 Golden Globes, 67 Grammys and 15 Baftas. He is also the second most Oscar-nominated person ever – just behind Walt Disney who had 59 nominations during his lifetime.

John still composes music using a pencil and paper on a small writing desk next to his Steinway piano. He says that he has never had time to learn to write music using a computer.



Entomologist



Hi, I am Yogie Kistensamy! I'm a Senior Research Technician. I conduct research to control invasive alien plants using insects. I have an MSc in Entomology and I have loved working in the weed bio control field for the past 20 years.

Layout by Su-Mia Hoffmann

What is an entomologist?

Entomology is the study of insects, so an entomologist studies insects.

What qualifications do you need to do your job?

A qualification in entomology, botany or agriculture.

What does a typical day look like for you?

Most of my work is done in a quarantine laboratory, as the insects I study are from foreign countries. I have to conduct experiments with them, so I breed them to ensure there are adequate numbers. I also grow and care for the plants the insects feed on. I collect and record the data from the experiments and use this to predict how insects can be used to control invasive plants. I also do fieldwork, which involves travelling to different countries to collect insects where invasive plants are indigenous (their country of origin).

! Get This

An invasive plant is a species which is not native to the place where it is found. Often, it becomes a nuisance species in its new habitat because it has no enemies.

Y Yogie's advice

The insect world is full of interesting, bizarre and fascinating life cycles and interactions! There are also many interesting and exciting career avenues possible in this field.

What is the most interesting part of your job?

I love studying the biology of an insect and seeing and measuring its impact on invasive plants. Using insects as a biocontrol agent to stop invasive plants really helps to save water, as invasive plants are big water users! Preserving the natural environment and helping agriculture is very rewarding.



Photo by F. Heystek

What are some of the challenges of your job?

Since my job involves working with living insects, it is sometimes difficult to create an environment that insects can thrive in, in a quarantine laboratory.



Photo by F. Heystek



Photo by Y. Kistensamy



Robben Island



Robben Island



Words by Andrea Vermaak
Layout by Nikita Abreu

Robben Island is a South African National Heritage Site and UNESCO World Heritage Site in Table Bay, Western Cape, South Africa.

It's steeped in history and is an important conservation site. I couldn't wait to hop on a boat to visit the island and learn more about it.

Lay of the land

The island is actually the summit of a mountain that now lies under the sea! Its low-lying, roughly oval-shaped area is only 5.08 km². Minto's Hill, named after the General Infirmity's Surgeon-Superintendent during the 1800s, is the highest point at about 24m above sea level.

Refuelling station

After its discovery, many Portuguese, English and Dutch navigators stopped on the island to replenish their meat and fresh water supplies. They also used the island to exchange post. Many still used the island to restock supplies even after Jan van Riebeeck arrived in the Cape in 1652 to set up a supply station on the mainland. The Dutch began to use it to graze their cattle and sheep.



History records that Bartolomeu Dias, a famous Portuguese mariner and explorer, discovered the island in 1488 as he became the first European navigator to sail around the southern tip of Africa.

An isolated prison

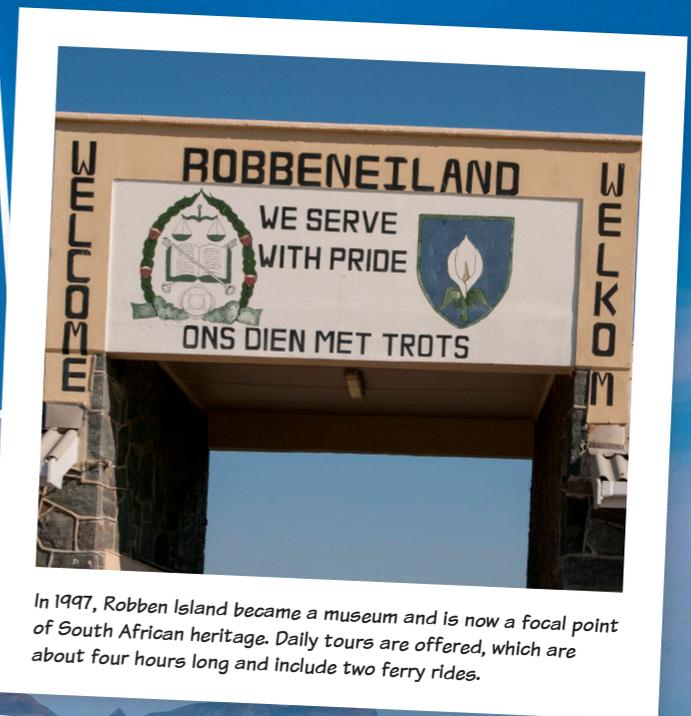
In 1671, the Dutch began to use the island as a prison. It wasn't long before political prisoners were sent there from other Dutch colonies. The British continued to use the island as a prison after they annexed the Cape in 1806. It was only after Apartheid ended in 1996 that the prison was closed for good.

A mental hospital

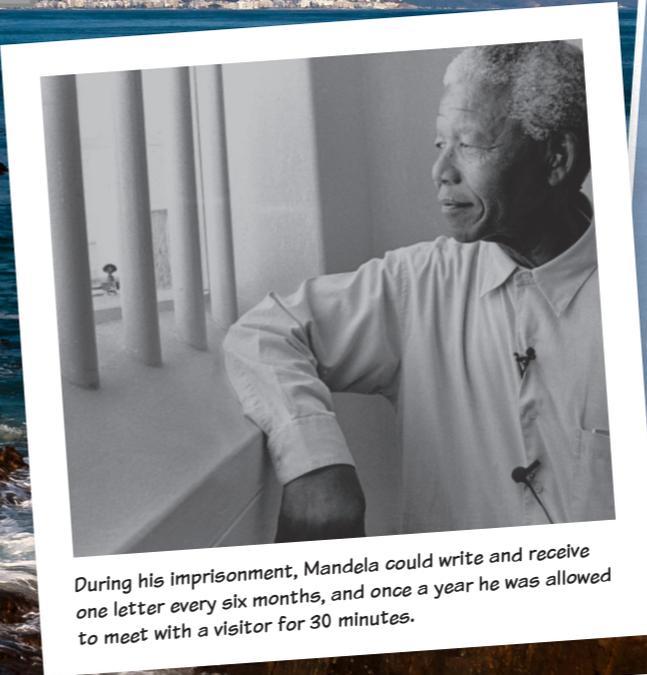
In 1812, Robben Island was used as a mental hospital. By 1845, those seen as outcasts were sent to the island, including alcoholics, the homeless and those too sick or old to work. They were treated badly and their living conditions were terrible. The institution only closed in 1931, despite a few improvements over time.

A military outpost

Robben Island was used as a military outpost after the last 'patients' were sent to hospitals on the mainland. Houses, a power station, roads and a new water supply were built.



In 1997, Robben Island became a museum and is now a focal point of South African heritage. Daily tours are offered, which are about four hours long and include two ferry rides.



During his imprisonment, Mandela could write and receive one letter every six months, and once a year he was allowed to meet with a visitor for 30 minutes.

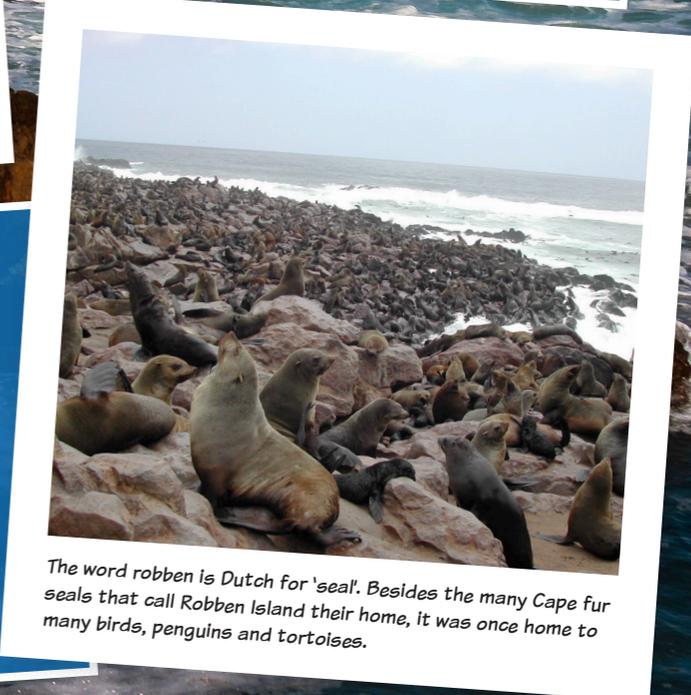
Most famous prisoner

In 1961, the island became a prison once again. Nelson Mandela, South Africa's first democratic president, was imprisoned there from 1964 to 1982 with many other political prisoners. He had to break rocks into gravel and work in a lime quarry. He did work on his law degree from the University of London at night, though. Now that's determination!

The nature of things

Today, there are about 132 bird species (sea, water and terrestrial) and about 23 mammal species, including bontebok, eland and springbok. Three tortoise species can still be found there. Dolphins and southern right whales can be seen in the waters surrounding the island.

Although fynbos is still indigenous, past farming practices affected the flora, and exotic trees and shrubs were planted.



The word *robben* is Dutch for 'seal'. Besides the many Cape fur seals that call Robben Island their home, it was once home to many birds, penguins and tortoises.

Things I've always wanted to ask my Soap

Words by Candice Robertson
Illustrations by Joshua Neilson

Supernova

After a long day outside, a hot bath is just what I need to scrub away all of the mud and dirt of the playground. As I sank down into my inviting bubble bath and lathered up my facecloth with some soap, I wondered to myself... what did people use before this creamy, softening cleansing agent? I decided to find out.

?! Get this!

The earliest known written soap recipe was found on a clay tablet from 2800 BC in ancient Babylon.



Q: Wow, I use you every day! But I don't know much about your history. When were you created?

A: My family tree begins 4 000 years ago in ancient Babylon and Sumeria. People discovered that mixing animal fats with wood ash or charcoal could create a basic cleansing substance. The ancient Egyptians combined animal and plant oils with salt to make their soap, while the ancient Chinese mixed plant ash with crushed seashells. They began to use these to remove dirt and impurities from clothes and other textiles, and to treat skin diseases.

Q: So, soap wasn't initially used for bathing and cleaning your body?

A: Correct! Many people thought the soap mixture was coarse, skin-irritating, and foul-smelling. So, they only used it for medicinal purposes. Eventually, better recipes were invented which were gentler on the skin, and people began to clean themselves more frequently with soap.

?! Get this!

According to Roman legend, soap was named after Mount Sapo, an ancient site of animal sacrifices. When it rained, the water would wash the animal fat and ash down the mountain and into the Tiber River. When women washed their clothes in that part of the river, they noticed that their clothes were much cleaner!

Q: Sounds like things were quite smelly back then. What did people use to clean themselves before soap?

A: Before my ancestors were born, people around the world just used water to clean themselves! Sometimes, they would mix in some sand and mud to exfoliate their bodies. Some wealthier groups had access to scented water or oil that removed dirt from their bodies and covered any bad smells.

Q: When did soap start becoming more popular?

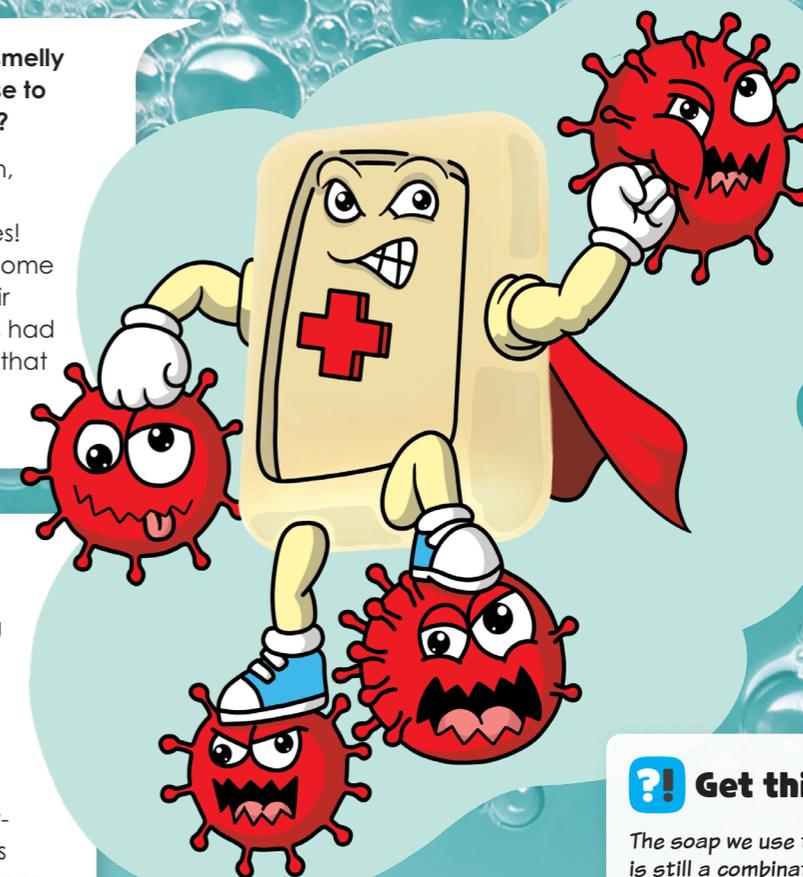
A: By the 7th century, soap-making was an established art in Italy, Spain and France. Many of the source ingredients were very easy to get, so soaps were made using goat fat, Beech tree ash, and olive oil. My great-great-great-great grandparents were the first to contain fragrances and essential oils which removed the animal or vegetable smell from the soap. Eventually, our family diversified into specialised soaps for all kinds of purposes – bathing, shaving, shampooing, and laundry!

?! Get this!

When the ruins of Pompeii were excavated, an entire soap factory was discovered in the rubble.

Supernova

Not only does my soapy friend protect me from germs and viruses like those that cause Covid-19, but it also keeps me clean and smelling fresh. I think about soap's fascinating history every day when I wash and sanitise my hands!



?! Get this!

The soap we use today is still a combination of fat or oils with a basic ionic salt.

Q: Wow! So, your family has always been a big part of human hygiene?

A: You could say that. Soap was hugely popular throughout the Roman Empire, from 100 BC to 400 AD. It became a weekly ritual across Europe for people to visit their local bath house and clean up. Unfortunately, when Rome fell in 476 AD, so did bathing. This led to a lack of cleanliness and poor living conditions and contributed to many plagues and the spread of illnesses in the Middle Ages.

But, as people began to better understand how disease spread, the demand for soap greatly increased! Our family began to be mass produced in the 1700s and 1800s. However, just as our relatives in England were gaining momentum, a large restriction and tax was placed on soap. This meant that soap was not available and affordable to most people, and became a luxury item that only the very rich could afford. When the tax was finally removed in 1853, hygiene standards improved and almost everyone started using soap daily!



Do we need to bath every day?

Every night, after a long day of running around and having fun, mom and dad remind us to clean up and take a bath. However, research shows that bathing every day is more about our habits and what is expected of us than our actual health. What do you think? Should we scrub ourselves every day to keep the stink at bay?

LIAM (8)

No! My brother and I like to stay dirty some days. We have 'varkie' night every Friday, and we don't bath... that is one of our favourite nights! No soap... no worries.... Mom hates 'varkie' night.

SN ✓



SIRI (9)

Yes, we should bath every day, because if we don't we will get smelly and lazy.

SN ✓



BOTLHALE (9)

No, because you'll waste water. Showering is better, but you need to be clean and smell good.

SN ✓

DAKALO (8)

Because if you don't bath, you will smell stinky. No one will play with you, so I think you should bath because it's the right thing to do. So bath! Your life depends on it!

SN ✓

UCHE (9)

We should bath every day, because when we bath we wash off all the germs called bacteria. Also, we need to bath because it is very good for the body and washes away bad smells.

SN ✓



LUCY (9)

No, it dries out your skin if you do it every day. But it is good to do it most of the time for you hygiene.

SN ✓

MOTHEO (9)

Yes, because you need to be ready for school and anywhere you go, so you don't get embarrassed.

SN ✓



MORATWA (9)

You should, cause it's called being healthy and taking care of yourself. If you don't you would smell and be rotten.

SN ✓



The Chatroom

Do you want to contribute to the next Chatroom? Follow *Supernova* magazine on Facebook, or subscribe to the *SN Kids Club* newsletter and look out for our questionnaires.

You can also **Whatsapp** us on 012 342 5347.



Life the universe and everything

YE OLDE SWEAR WORDS

Foul Language from Yesteryear

Words by Su-Mia Hoffmann
Illustrations by Benoit Knox

Since foul language and emotions are so interconnected, swearing has been around as long as language itself. And some of these old swear words are hilarious, especially the insults!

Thunderation

An American exclamation that is a variation of damnation. How to use it in a sentence: "How in thunderation did you get onto the roof, young man?"

Rakefire

Someone who overstays their welcome is a rakefire. The term comes from the person who rakes the fire and keeps it going, even though their hosts are ready for them to go home. How to use it in the sentence: "He is being a real rakefire. I want to go to bed, but he won't leave!"

Scobberlotcher

This insult is most likely from an old English dialect. A scobberlotcher is someone who avoids working hard at all costs. How to use it in a sentence: "Look at that scobberlotcher twiddling his thumbs."

Fopdoodle

An insult for someone acting foolish that keeps on making bad choices. How to use it in a sentence: "I cannot believe you touched the hot pan again. What a fopdoodle!"

Muckspout

This Victorian adjective is what you call someone that swears way too much. How to use it in a sentence: "His mouth needs to be washed out with soap, he's a real muckspout."

Thunderation! You sir are a zounderkite fustilarian, and a scobberlotcher!



Smellfungus

This word was invented by the writer Laurence Sterne. It is used to describe someone who has a complaint about every place they go, but it can refer to any buzzkill. How to use it in the sentence: "That smellfungus only had bad things to say about Clarens!"

Cloak Twitcher

In the 1800s, it was common for your coat to be stolen right off your back. Over time, 'cloak twitcher!' became a swear word said in surprise. How to use it in a sentence: "Cloak twitcher, you scared me!"

I urge you to edge it, you smellfungus muckspout! I'm coflumpuxed by your rude language, you scald!



Buffle-Head

This swearword is also the name of a small sea duck. It is used as an exclamation of frustration. How to use it in a sentence: "Buffle-head, I cannot get this password to reset!"

Zounderkite

A Victorian insult to call someone dumb. How to use it in a sentence: "Don't be a zounderkite and eat the lollipop that fell on the floor!"

Mullock

In Old English, mullock is a swear that means trash or rubbish. How to use it in a sentence: "What mullock are you talking now?"

Fustilarian

This word was invented by Shakespeare. It is also an insult used towards someone who is clumsy or a timewaster. How to use it in a sentence: "That fustilarian dropped one of my porcelain figurines again when he was going on and on about his newest hobby, and I was late!"

Edge It

This is an old Australian way of saying 'shut up'. How to use it in a sentence: "Edge it, mate! I'm trying to listen to my podcast."

Waesucks!

This Scots Middle English word is used as an exclamation of horror, sadness or pity. How to use it in a sentence: "You've got a flat wheel again? Waesucks!"

Coflumpux

This is the original way of saying 'I can't even'. This swearword is a combination of *ker* (onomatopoeia of an explosion), *flummo* (a mess) and *thump*. How to use it in a sentence: "Coflumpux with this frustrating furniture!"

Scald

Scald is an old synonym for scurvy, the horrible disease you get from lack of vitamin C. It was common in the old days for sailors to get it and it looked pretty gross. Calling someone a scald is calling them gross. How to use it in a sentence: "Ew, you dirty scald!"

Chat to us!

What's your favourite new (old) way to insult someone or to exclaim in pain or surprise? Let us know on [social media](#).

TAKING FLIGHT WITH DRONES

Words by Chanté Vorster
Illustration by Joshua Neilson

Ever heard buzzing outside, with no bees, flies or mosquitoes in sight? Chances are that a drone was close by! Drones, or Unmanned Aerial Vehicles, are robot-like aircrafts that are remote controlled. They are used to carry out many different tasks, from super simple jobs like dropping off your groceries, to the ultra-dangerous like helping rescue avalanche victims. They can be as large as an airplane or as small as your hand!

HOW DRONES IMPROVE OUR LIVES

?! Get this!

Drones can be piloted remotely (which means that humans control their movements from another location) or they can fly themselves, using a system of sensors and LIDAR detectors to calculate their movements.

Drones were originally developed to help the military and aerospace industries. But, their enhanced safety levels and efficiency mean that they are now used to help in all kinds of ways!



Aerial photography for films, journalism and sport events



Deliveries and shipping of prescriptions, groceries, last-minute gifts and packages



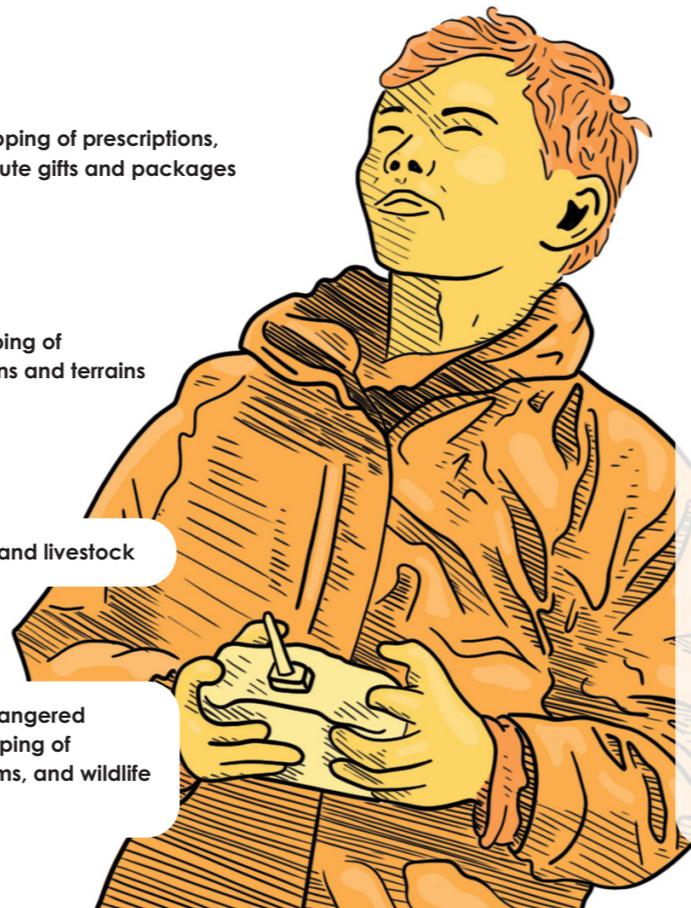
Geographic mapping of dangerous locations and terrains



Monitoring crops and livestock



Monitoring of endangered species, geo-mapping of different ecosystems, and wildlife surveys



Law enforcement and border control



Search and rescues using thermal sensors



Supplying essentials or gathering information for disaster management



Storm tracking

ENVIRONMENTAL IMPACT OF DRONES

While drones are used to help monitor endangered species and geo-map different eco-systems, they can also have a negative impact on the environment. Drones are growing increasingly popular for photographers because they're able to take high quality, bird's-eye view shots from the sky! But, drones can become a danger to the environment when they are steered into prohibited areas such as nature reserves or national parks. In fact, it's illegal in South Africa and other countries like the US to fly drones over reserves because they disturb the wildlife and habitats.

?! Get this!

Drones have helped transport kidneys and lungs to doctors for different organ transplant surgeries.

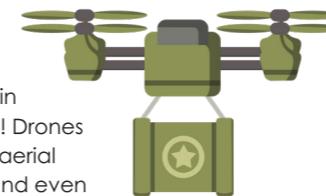


DRONES IN SOUTH AFRICA

You may not know this, but in countries such as Rwanda and Ghana, drones have been used to deliver medical supplies and food to disaster-hit areas and rural hospitals. South Africa is also using drones for medical purposes!

Malaria

South Africa's Medical Research Council is currently looking into using drone technology in the fight against malaria! Drones can be used to provide aerial views of breeding-sites and even apply insecticide to the area.



Emergencies and rescues

The Western Cape recently became the first province in South Africa to legally fly drones as part of its emergency medical services! The drones can fly over public spaces, roads, people and national key points. They help in search and rescue attempts, major emergencies, drownings, mountain rescues, accidents and fires by locating patients for rescue volunteers and emergency medical officials.



Flying megaphone

Limpopo used megaphones attached to drones to spread Covid-19-related health information. The megaphone spread messages about health protocols in local languages to make it easy for people to understand. Drones were also used to monitor identified and potential Covid-19 hot spots.



Project BloodWing

In 2019, the National Blood Service launched a drone-based blood delivery system which helps deliver blood to people living in remote areas in KwaZulu-Natal and Eastern Cape.

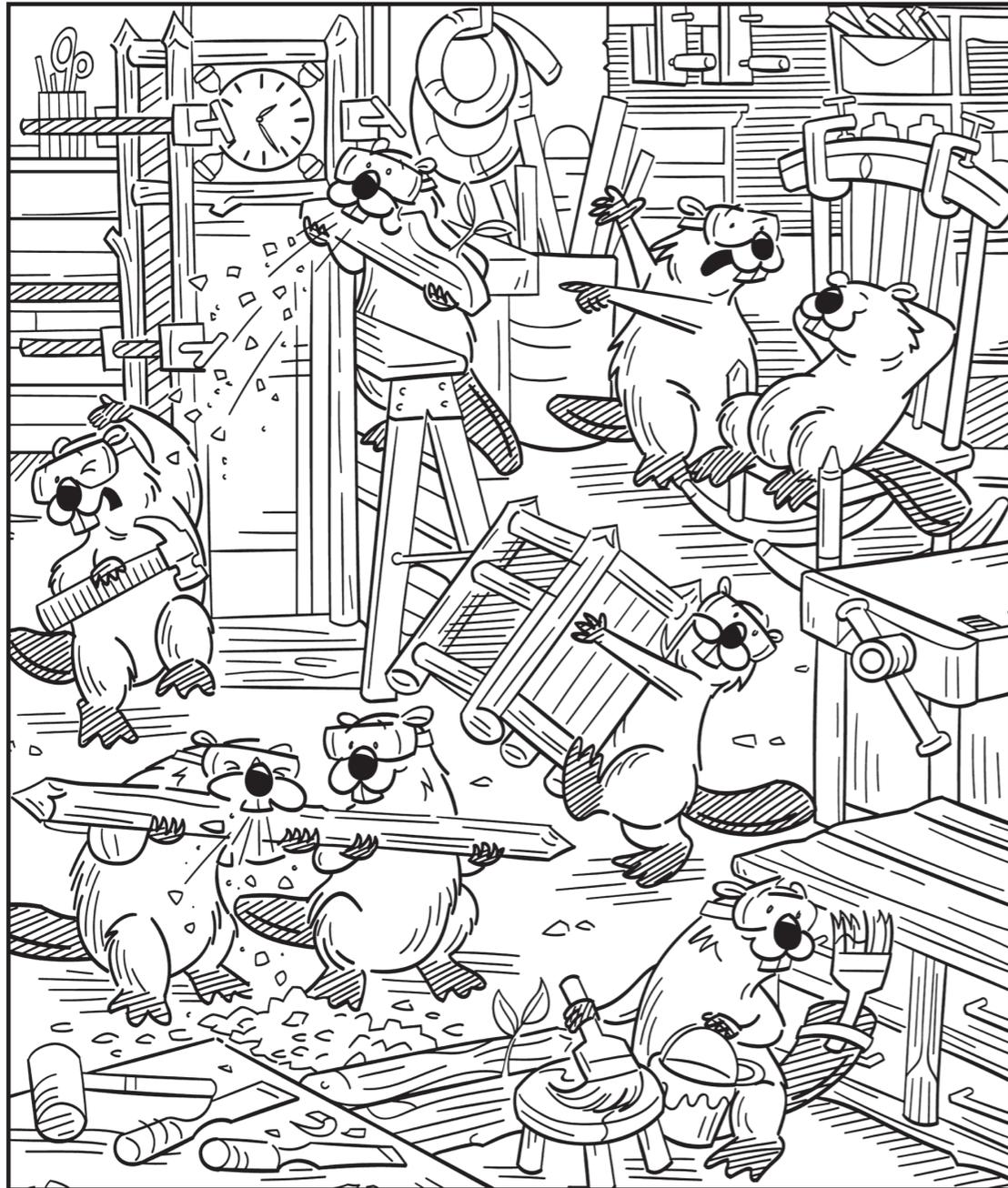
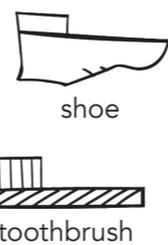
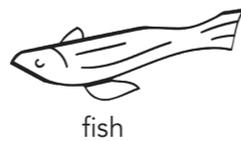
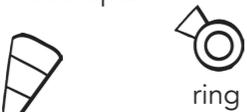
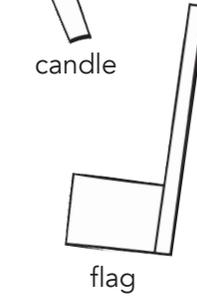
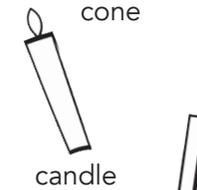


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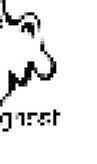
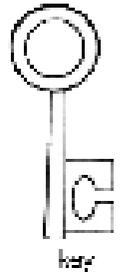
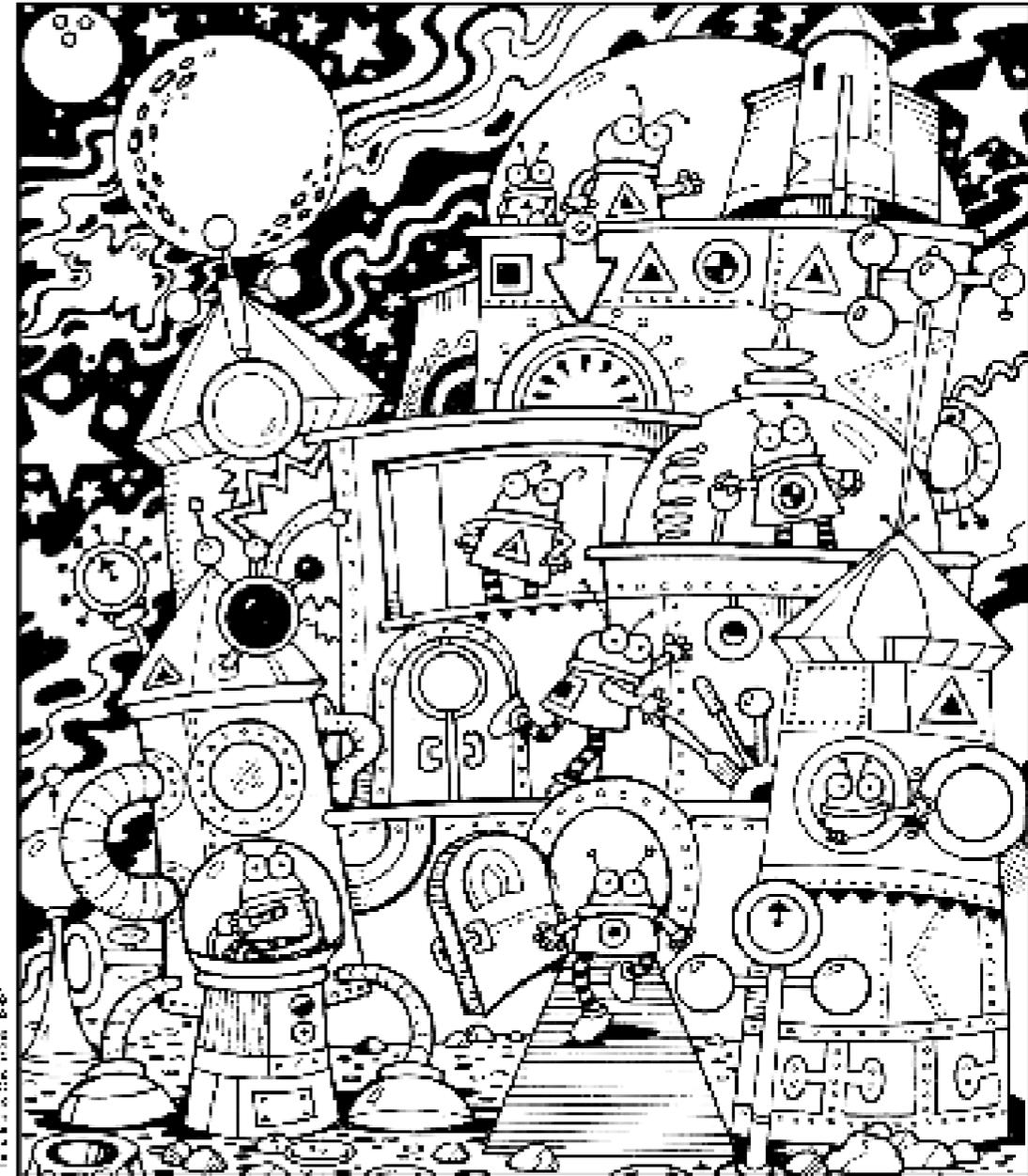
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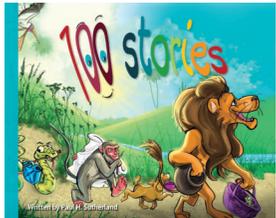
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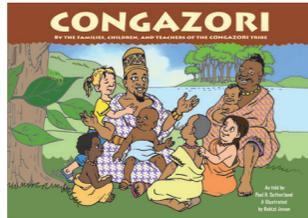
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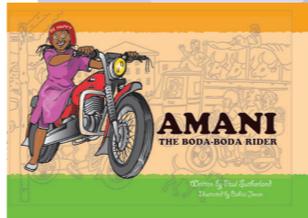
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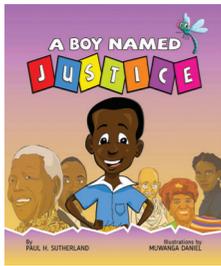
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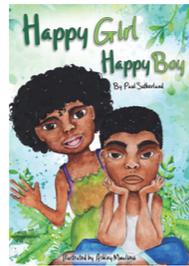
Congazori
This story tackles environmental conservation, civic participation, and connectedness.



Amani the Boda-Boda Rider
An ambitious girl tackles equality, inclusivity, and perseverance.



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A courageous young boy teaches children about bullying, justice, and acceptance.

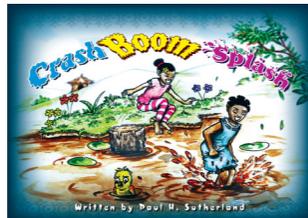


Happy Girl, Happy Boy
Sometimes, we feel happy, and sometimes, we feel sad! This book teaches us that it's okay to feel all kinds of different emotions.

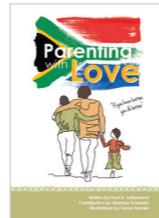


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This little handbook equips parents, teachers, clergy, and caregivers with basics on how to create a happy, peaceful future — full of virtue, love, meaning, success, and justice for our children.

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STEPi is for people who really want the tools to help create a world of peace, compassion, justice, resilience, happiness, and thriving sustainability for everyone, now and all future generations. Paul H. Sutherland

www.stepiedu.com

STEPi is an organisation that aims to make sure children are prepared, willing, and happy when they reach adulthood. Squaring the Education Pyramid Institute publishes children's books, written by Paul H. Sutherland and these books encourage empathy, self awareness, and inclusivity, and focus on the emotional development of children.



'Most Detailed Visualization of a Plant Cell Ever Created'
by Evan Ingersoll & Gael McGill

This is a 3D image of a eukaryotic cell, which is any cell or organism that possesses a clearly defined nucleus. It was put together using X-ray, nuclear magnetic resonance (NMR), and cryo-electron microscopy technology. The model was created to help visualize the many pathways involved in cellular processes. This includes processes like signal transduction, protein synthesis, endocytosis, vesicular transport, cell-cell adhesion and apoptosis. What an amazing representation of the great complexity & beauty of the cell's molecular machinery!





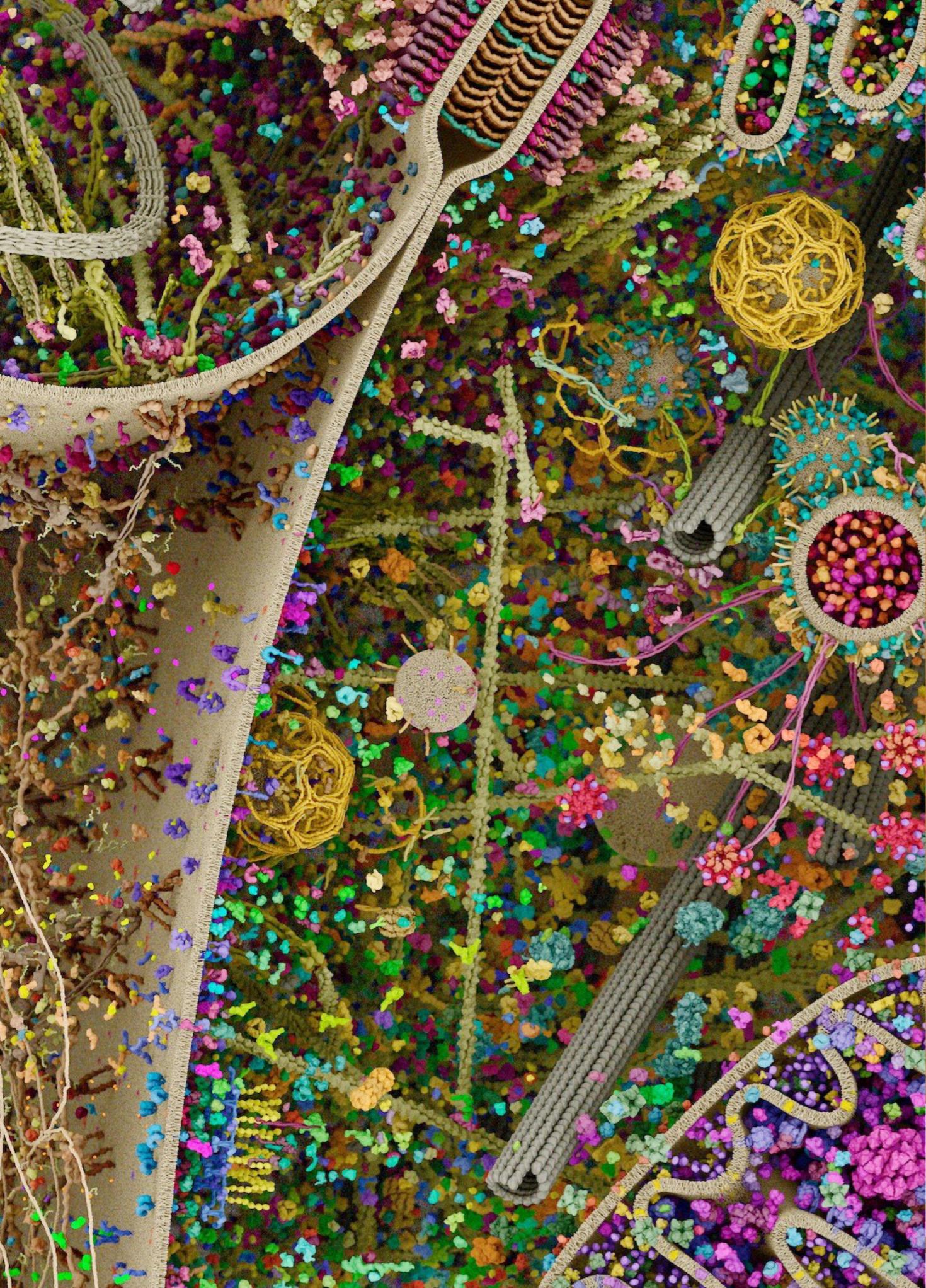
The Buglife Young Bug Photographer of the Year 2021

Photos by Alexis Tinker-Tsavalas

All of these amazingly intricate photos were taken by Alexis, a 14 year-old living in Berlin, Germany. He got his first camera in 2017 and has been taking photos ever since. He says: "I like that I can do macro photography anywhere and I don't have to go far away or to a special location to find interesting subjects. I got more seriously into macro photography in the initial lockdown in 2020 and spent a lot of time near my house looking for bugs." He won the Buglife Young Bug Photographer of the Year award in 2021 with his excellent shot of a Masked bee (on the right). His top tip for photographers taking photos of small subjects is to use a flash and diffuser, to achieve nice even lighting.

Check out more of Alexis' amazing bug photography on Instagram @naturefold.



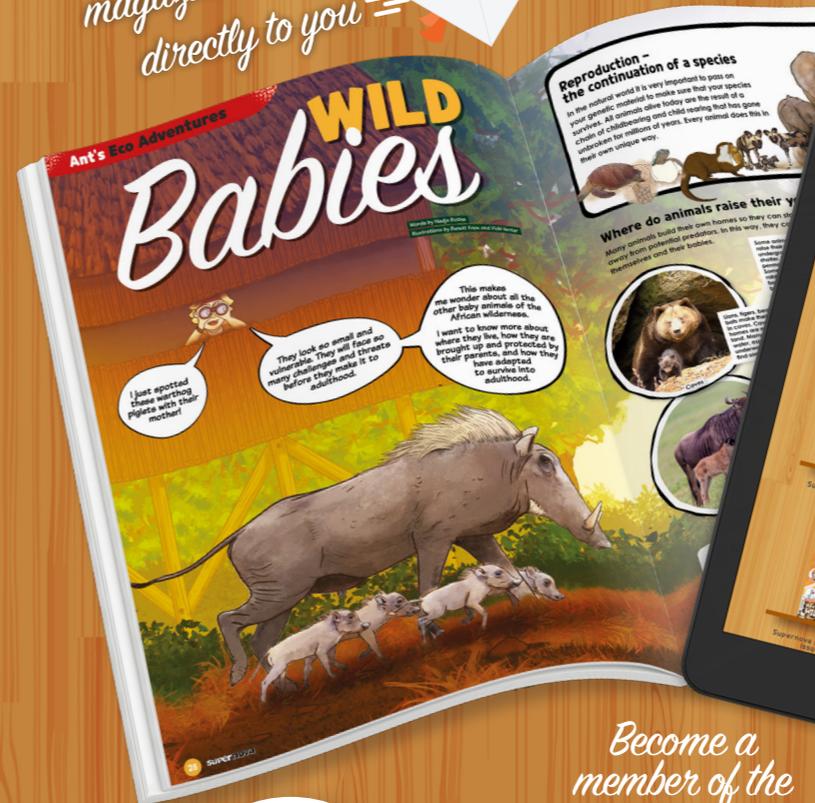


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Words by Candice Robertson
Illustrations by Benoit Knox and Vicki Venter

BUGS

a

During my hike, I stumbled across this old, rotting log! If you take a closer look, you'll discover an abundance of life thriving in the crevices.

Did you know that insects are the largest group of animals? In fact, about 75% of all animals are insects! Today, there are about 1 million known types of insect. And scientists are constantly discovering new species!

What are insects?

Insects are members of a larger group called arthropods, which include spiders, ticks, centipedes, lobsters, and crabs. Like all arthropods, insects have a body that is divided into segments. They also lack a skeleton inside their body. Instead, insects and other arthropods have a covering on the outside of the body called an exoskeleton. This exoskeleton protects the body. Insects also have six legs and have at least one pair of antenna or feelers.



Exoskeleton of a locust.



Fly laying eggs.

Insect life cycles

Most insects hatch from eggs, and undergo a metamorphosis process (like butterflies and moths) where they change their form and develop their adult features.

Others that do not undergo a metamorphosis are born in nearly the same shape they have as an adult. As the insect grows, their covering splits apart and falls off from time to time and a new covering grows. This process is called molting.

Adaptations

Insects have a variety of ways to protect themselves from their enemies. They may have highly developed camouflage, hard armour, the ability to bite or sting, or poison producing abilities.

Let's take a look at some of Africa's most interesting insects!

Mopane caterpillar/moth

Gonimbrasia belina



Mopane worms are a species of emperor moth which is native to the warmer parts of southern Africa. They are called mopane worms because they feed on the leaves of mopane trees after they hatch. After they have fed on mopane leaves, they burrow underground to pupate and emerge after winter as adult moths. Pupating underground protects them from human harvesters (as mopane worms are a tasty snack in many parts of Africa) and other predators, and also allows them to survive the winter months. Adult mopane moths do not feed and are short-lived – they only live for about three to four days during which they mate and the female lays her eggs.

?! Get this!

Male mopane moths have feathery antennae, which they use to detect the presence of females, possibly through pheromone cues.

?! Get this!

A pheromone is a chemical that animals or insects produce which change the behaviour of another animals or insects of the same species.

Citrus swallowtail butterfly

Papilio demodocus

You might have seen a citrus swallowtail butterfly in your garden, as they are beautiful and eye-catching when they are adults! However, you might not even notice them when they are little caterpillars as they are perfectly camouflaged as bird droppings. The caterpillars also have another curious defence adaptation: the osmetrium – a forked, orange-coloured organ that pokes out from behind the caterpillar's head and gives off a scent that would make any potential predator lose its appetite. Their love for munching on the leaves of citrus plants give them their name.



The citrus swallowtail caterpillar looks just like a bird dropping!

African death's head hawkmoth caterpillar

Acherontia atropos



The most notable feature of African death's head hawkmoths is a patch of short yellowish hairs on the thorax that looks like a human skull. They are striking insects, but are seldom seen because they fly late at night. The caterpillars are actually snake-mimics, expanding their size and eyespots when threatened! The hawk part of their name comes from their ability to feed while flying on the spot. Death's head hawkmoths are also known as 'bee robbers', since they love stealing honey from hives.

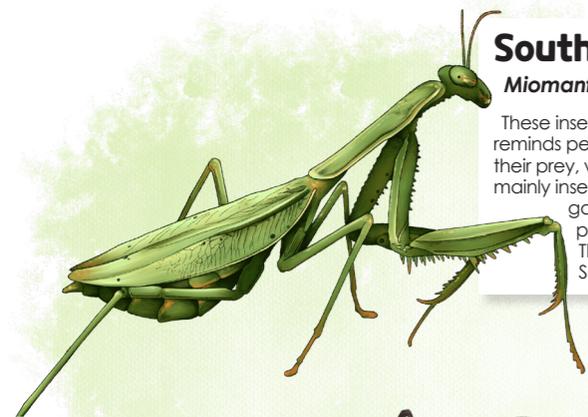


Photo: Helen Stewart

South African praying mantis

Miomantis caffra

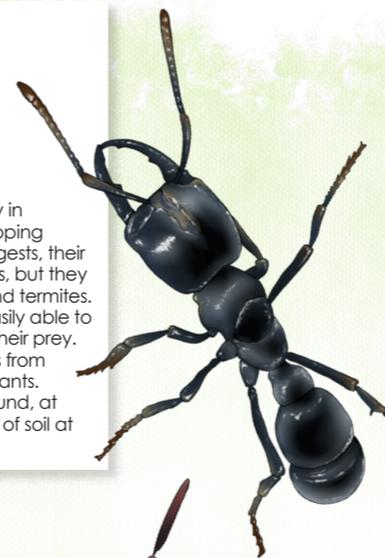
These insects get their name because of their very long front legs that hold a position that reminds people of praying. Their front legs have rows of sharp spines to help them hold on to their prey, which they usually begin to eat head first! Praying mantids are carnivores, eating mainly insects and other small animals like spiders, lizards, frogs and even small birds. Many gardeners and farmers welcome mantids, because they eat insects that are often pests and hurt crops. They can turn their heads 180 degrees – an entire half circle! They're also well-camouflaged, adapting colours that help them blend with plants. Some also have amazing body shapes that make them look like leaves or branches.



Ringbum millepede muncher ant

Plectroctena mandibularis

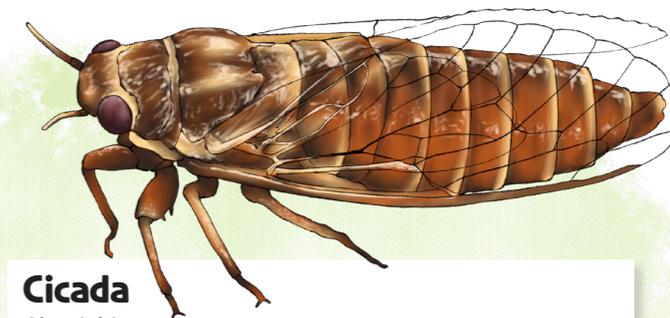
These ginormous ants vary in size from 16mm to a whopping 24mm! As their name suggests, their favourite food is millipedes, but they also prey upon beetles and termites. Their powerful jaws are easily able to crush the exoskeleton of their prey. They hunt alone or in pairs from small colonies of up to 50 ants. They nest deep underground, at about 60cm, with a heap of soil at the nest entrance.



Cicada

Cicadoidea

If you have ever stepped outside and heard piercing shrills that make your ears and head buzz, then you have most probably heard the 'summer screamer' – a.k.a. the cicada. Cicadas look like a beetle. Males use a unique noise making organ, called a tymbal, located on the front side of their hollow body to lure females with their attractive songs. After mating, males die and females quickly lay their eggs (around 400 at a time) before also dying. Cicadas are found on every continent in the world, except for Antarctica, as they prefer warmer climates – with 150 species occurring in South Africa.



Broad scarlet dragonfly

Crocothemis erythraea

Broad scarlet dragonflies are easily recognisable due to their flattened and very broad abdomens. Adult males are bright red with small amber patches at the bottom of their back wings. Females and immature males are yellow-brown. These dragonflies tend to mate in flight. The mating only lasts a short time and females lay their eggs immediately afterwards, with the male flying around to protect her. They are found throughout South Africa, including the arid regions of the Karoo and Kalahari.



African giant water bug

Belostomatidae

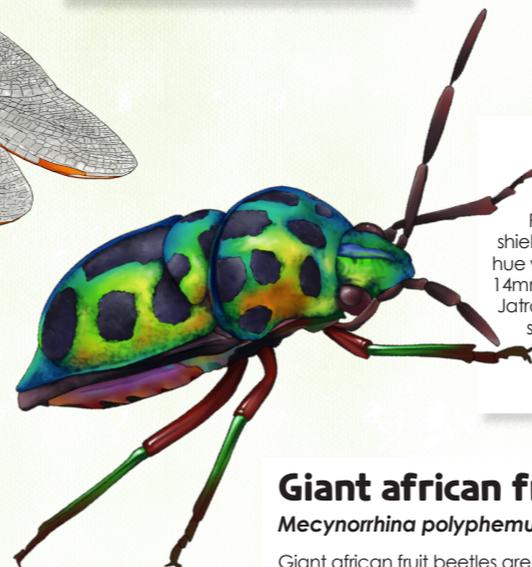
Giant water bugs generally lie motionless near or on the bottom of a river bed, waiting to strike their prey. They are known for often delivering a painful (though non-toxic) bite between the toes of unsuspecting human feet. This explains one of their common names: toe-biter! Their hind legs resemble oars which help them swim across ponds and marshes. They also squirt unpleasant smelling fluid from their anus when threatened and can play dead – becoming rigid for a few minutes – if removed from the water, only to snap back to life!



Rainbow shield bug

Chrysolina cerealis

Rainbow shield bugs are most recognised by their striking plate-like shields which protect their bodies. Their mesmerising metallic sheen changes hue with the changing direction of light. Rainbow shield bugs are around 14mm long and are often found in semi-arid bushvelds. They feed on *Jatropha* plants (plants used to produce bio-fuel), sunflowers, tobacco, and sorghum, meaning that they are considered to be pests by farmers. Their defence system is 'layered' – from a distance they are difficult to see because they are camouflaged, they have a tough armoured back, and if touched, they give off revolting scents, rather like stink bugs.



Giant african fruit beetle

Mecynorrhina polyphemus

Giant african fruit beetles are colourful and large – they are some of the largest insects on the planet! They are also super strong and can carry as much as 800 times their weight. Beetles are also ferocious, with male beetles competing for food and mates by locking their horns in a sort of 'dominance battle'. African fruit beetles eat food with high sugar content like tree sap and rotten fruits. They also eat other plants, dung and animal remains. By doing this, they help the ecosystem as this action lessens the number of decaying animals and plants in the environment.



Horse-fly

Tabanidae

Horse-flies feed on nectar and plants, and some are important pollinators of certain specialised flowers. Female horse flies are anautogenous, meaning that they require a blood meal before they are able to reproduce effectively. To obtain the blood, the females bite animals, including humans. Because their bite is irritating to the victim, they are often brushed off, and may have to visit multiple hosts to obtain sufficient blood. This behaviour means that they may carry disease-causing organisms from one host to another.

Green milkweed locust

Phymateus viridipes

Also known as African bush grasshoppers, these colourful locusts have a green body and forewings, with bright red and blue hindwings. Female milkweed locusts grow much bigger than males, and males have brighter colours on their wings to entice females. These locusts can expel a toxic, foul-smelling foam to defend themselves which contains the poisons found in stinkwood plants. Their bright colour cautions predators that they're dangerous. They are considered to be a pest in some regions of the world, as they sometimes damage crops and ornamental plants.



Ambush bug

Phymatinae

Like their name suggests, ambush bugs lie in wait on flowers, using their camouflage to remain unnoticed, and prey on insects that visit the flowers. They capture their prey with their raptorial forelegs, similar to a praying mantis, and use their piercing-sucking mouthparts to liquify and ingest the insides of their prey. Ambush bugs routinely capture prey ten or more times their own size.

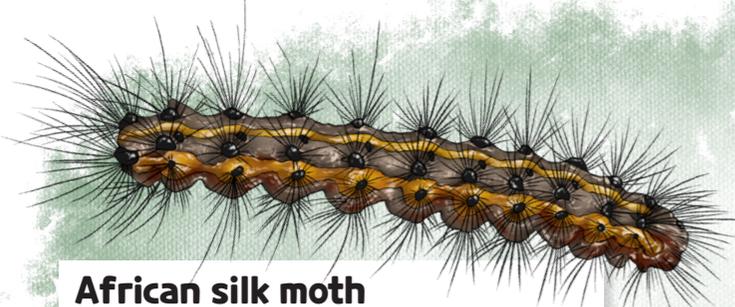


Harlequin ladybird

Harmonia axyridis

Also known as the Asian ladybeetle, Harlequin ladybirds vary in pattern with up to 19 black spots on a red or orange background. They are a predatory species and are able to out-compete native ladybird species for aphid-prey and will also eat other ladybirds' eggs and larvae. They can have multiple broods throughout the spring, summer and autumn, which also gives them a competitive edge. They have spread so rapidly throughout South Africa, that they displace and pose a threat to some of our native South African ladybird species.





African silk moth
Gonometa postica

Also known as burn worms, these immature caterpillars are protected by spines that look like brown, black and white hairs and can cause irritation! They spin strong silken cocoons to protect the immobile pupas until they are ready to emerge as adult moths. During construction, these spines are incorporated into the cocoon wall for protection. After the moths emerge from their cocoons, the cocoons are collected for the fine quality wild silk inside.

! Get this!

Currently, only cocoons from which silk moths have already emerged are collected to ensure that natural populations are not negatively impacted.



Cape honey bee (darker body) compared to an African bee (yellow body).

Cape honey bee
Apis mellifera capensis

Cape honey bees are only found in the Western Cape and parts of the Eastern Cape. Compared to other honey bees, they are darker in colour. They are also unique from other bees since they can change their pheromone from a worker to a queen-like scent. This means that parasitic workers can invade other colonies by laying their eggs and getting the host colony to raise and care for the eggs without knowing. This is a big problem for other bee species and reduces their population numbers.



Giant stick insect
Bactrododema krugeri

These giant stick insects were discovered as a new species in 2004, after being incorrectly classified since 1912! There are about 3 000 known stick insects worldwide. The *Bactrododema krugeri* is now the longest in South Africa. They are almost 30cm long when their legs are stretched out. Even though their bodies might seem clumsy, some giant stick insects can fly! Mostly, they use their superb camouflage and lurk in treetops, moving very slowly and feeding on the leaves at night.

Anopheles mosquito
Promerops cafer

Anopheles mosquitoes are known universally as Malaria mosquitoes because they are considered to be the primary carriers of the disease. Anopheles mosquitoes obtain nourishment from plant nectar and other sources of sugar, but females must take a blood meal before they can produce fully developed eggs. Although females only live a few weeks, they are able to produce thousands of eggs during that time, laying up to 200 eggs individually onto a water's surface each time.



Why are insects important?

Insects are crucial components of many ecosystems, where they perform many important functions. Insects are eaten by some people across the world, as well as many amphibians, reptiles, birds, and mammals, making their roles in food chains and food webs extremely important. Some insects produce valuable products such as honey, silk, and dyes, which are of economic importance. Insects have also been used in medicine, like using maggots to clean wounds and eat dead flesh. Many flowering plants also depend on insects for pollination.

Wow! Insects might seem creepy and crawly, but they are so advanced and adapted to their environment!

Our ecosystems could not survive without them!



Make an Eco-friendly BUG HOTEL

What you need:

- Tin cans
- Glue/contact adhesive
- Twine or rope
- Natural materials:
 - twigs/sticks
 - dried leaves
 - tree bark
 - small stones
 - grass

Attract all kinds of fascinating creepy crawlies to your garden for you to take a closer look at... with your very own bug hotel! Switch up your materials to attract different insects to your garden.

- 1 Collect between 6 and 8 tin cans.
- 2 Make sure that the tin cans are washed and dried. Be aware of sharp edges on the cans.
- 3 Arrange the tin cans in a formation of your choice.
- 4 Stick all the cans together with glue.
- 5 Leave the cans to dry.
- 6 Fill each tin can with a different natural material.
- 7 Place your bug hotel in a sheltered spot in your garden.

! Pro Tip!

You can tie a piece of twine or rope around your bug hotel for extra support.

GIANTS OF THE ICE AGE

Words and layout by Candice Robertson

Backgrounds by Lené van Jaarsveld

During a time when the Earth was much colder than it is now, giants roamed the lands. Or rather, they roamed the ice sheets that covered the Earth. Enormous fossils that prove their existence have been left behind for scientists and palaeontologists to study. Now, hundreds of thousands of years later, we can marvel at how these colossal beasts have shared the same spaces as us. Just how much do you know about these giants of the Ice Age?

An ice age, also called a glacial age, is a period of time during which land is covered with thick sheets of ice. The Ice Ages began around 2.4 million years ago. During this time, the earth's climate repeatedly changed from very cold to very warm. During the cold periods (called glacials), glaciers covered large parts of the world, and during warm periods (called interglacials), many of the glaciers melted. There have been at least 17 cycles of glacial and interglacial periods. Today, we are in a warm interglacial period.



Get this!

The last glacial period began about 100,000 years ago and lasted until 25,000 years ago.

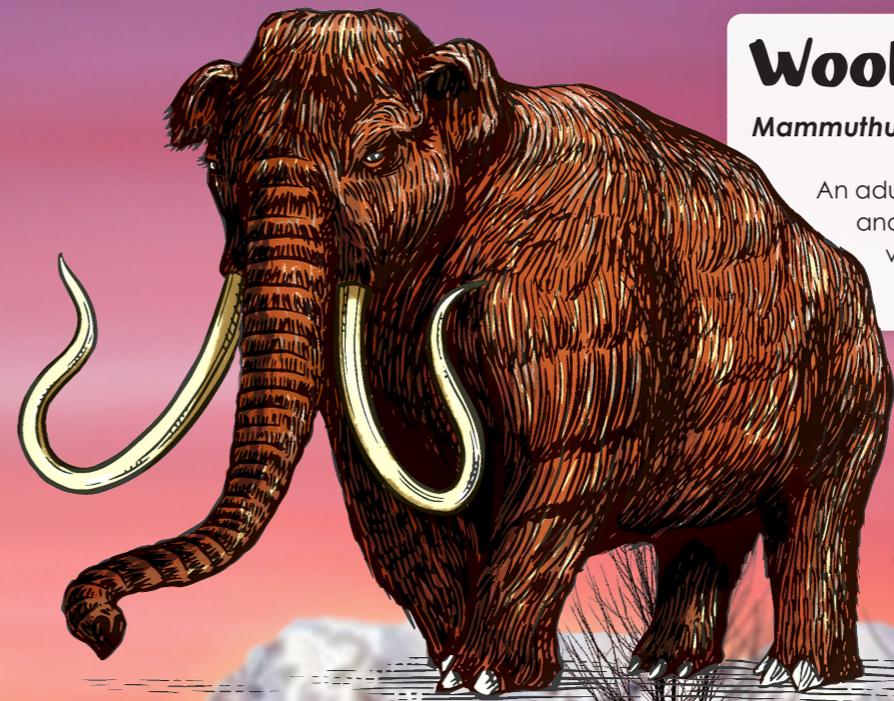
During an Ice Age, the Earth's surface is completely frozen. This type of barren and cold biome is known as a tundra. Only a few plants, including evergreen trees, can grow in the frozen soil.

Animals were specially adapted to live in these conditions. They had thick, woolly layers of fur, diets suited to life in the cold, and special ways to find food.

Many of the animals that lived during this time were ginormous. Their size helped them to survive in the difficult Ice Age conditions. So, they are referred to as 'megafauna', which means large or giant animals. Once the climate started warming, some animals evolved to a smaller body size over time. Animals we know today have evolved from these giants of the Ice Age. However, many of the large animals could not survive the changing temperatures and went extinct.

Get this!

There are still some tundra biomes that exist today in places such as Europe, Asia and North America.



Woolly Mammoth

Mammuthus primigenius

An adult mammoth was approximately 4m high and weighed about 5 443kg. Their tusks were very long (around 5m) and were used for fighting and digging in the deep snow.

Get this!

Mammoth tusks began to form at birth and continued to grow throughout their lives.

Under their two layers of thick fur, they had a layer of pure fat, around 10cm thick, that provided insulation. Mammoths had small ears which were close to their heads and helped to keep them warm. Their small tail also prevented heat loss. Mammoths also had a form of 'anti-freeze' blood to keep their bodies supplied with oxygen at freezing temperatures.

Fast facts

- Herbivores
- Used their huge curved tusks to scrape away snow to get to vegetation
- Related to Asian elephants
- A 10 000-year-old woolly mammoth skeleton was found in Siberia in 2020



Saber-Toothed Cat

Smilodon gracilis

Saber-toothed cats could weigh between 55 – 400kg, making them the largest cats on Earth! They got their name from their long and sharp canine teeth, which could grow up to 20cm long! Their short legs were well developed for hunting and their strong neck muscles meant they could easily bring down large prey.

Fast facts

- Carnivore, hunted in prides
- Remains of a 90% complete sabre-toothed cat was found in South Dakota, USA, in 2019. It is 37 million years old and 120cm long



When fully grown, they were the same size as an African lion, but were stronger with shorter limbs. Although they are often called saber-toothed tigers or lions, they are more closely related to the clouded leopard.





Irish Deer

Megaloceros giganteus

The Irish deer, also known as the giant deer, is one of the largest deer that ever lived. They were around 2m tall, and carried the largest antlers of any known deer – weighing around 40kg and 4m wide. This meant that their necks, chests, and backs were very muscular. Scientists estimate that they weighed around 700kg.

Fast facts

- Herbivore
- Direct living relative is the fallow deer

In 2018, beach walkers found a near-complete skeleton of a giant deer on the Isle of Man. It had an antler span of 2m! The skeleton was exposed after a part of a cliff face was weakened by winds and heavy rain, which resulted in it collapsing onto the beach.



Photo: Johann-Nikolaus Aronow



Photo: Mark Norman/Hulton-Stock

?! Get this!

Despite their name, Irish deer did not live only in Ireland. They got their name because many, well-preserved remains were found in Ireland.

Macrauchenia

Macrauchenia patachonica

Macrauchenia were large animals with camel-like bodies. They were 3m long and weighed up to 1042kg, which is about the size of a black rhino. Their feet also resemble those of a modern-day rhino, with one central toe and two side toes on each foot. They had sturdy legs, a long neck and small head.

Fast facts

- Herbivore
- Scientists believe that because of the form of its teeth, it used its trunk to grasp leaves and other food
- Doesn't have any close living relatives, but has distant relatives like horses, rhinos and tapirs

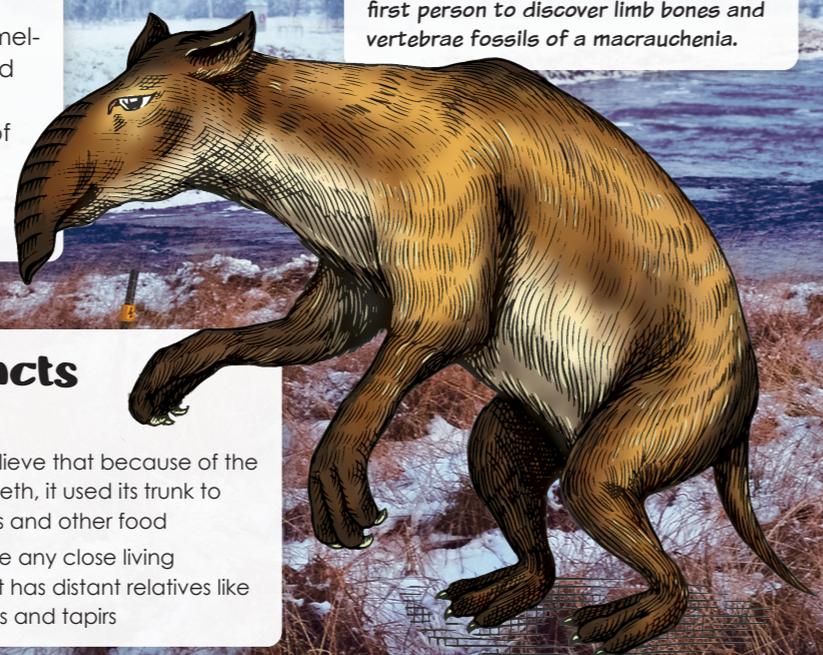


Photo: Aguin Eric

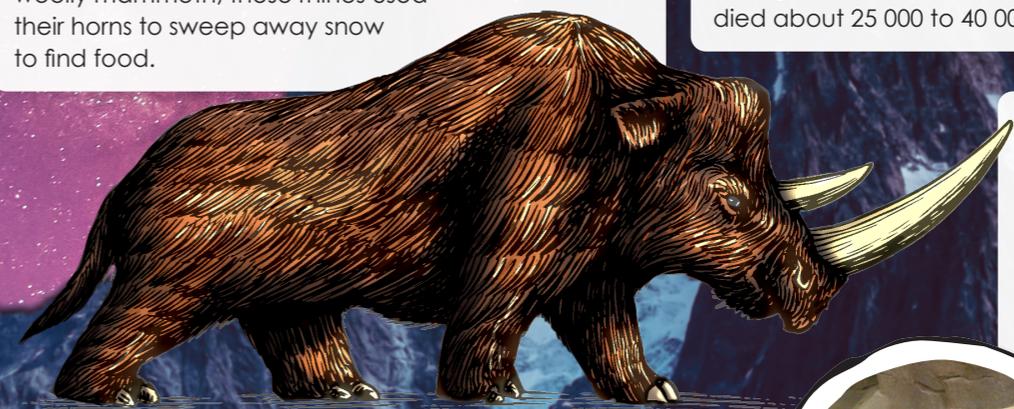
?! Get this!

While on an expedition in 1831 and 1836 in Patagonia, Charles Darwin became the first person to discover limb bones and vertebrae fossils of a macrauchenia.

Woolly Rhinoceros

Coelodonta antiquitatis

Woolly rhinos were very similar to the white rhinos we know today. They had small ears, short and thick legs, and a stocky body. Their snouts featured two horns, one small and one large. However, these horns weren't true horns. Rather, they were epidermal – made up of thick, matted hair (keratin). Like the woolly mammoth, these rhinos used their horns to sweep away snow to find food.



?! Get this!

Male woolly rhino horns were used to attract females during the mating season – the bigger, the better!



A well-preserved woolly rhino carcass was found in melting permafrost in Sakha, Russia, in August 2020. The rhino was 2.44m tall and died about 25 000 to 40 000 years ago.

Fast facts

- Herbivore
- Either lived alone or in small family groups
- Closest relatives are Sumatran rhinos

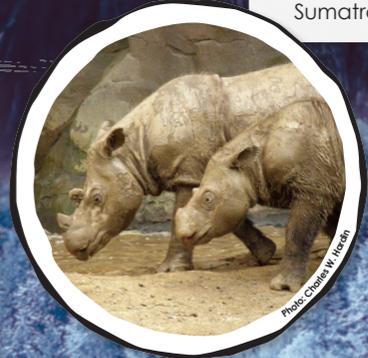


Photo: Christian M. Koenig

Cave Lion

Panthera spelaea

Can you imagine a giant feline larger than the lions we know today? Well, cave lions were 2.13m long (excluding their tail) and weighed between 320 and 360kg. This makes them one of the largest lion species ever! Their rounded, protruding ears, tufted tail and pale stripes are represented in ancient cave paintings, ivory carvings and clay figures discovered throughout history.



Fast facts

- Carnivore
- Hunted large herbivores like horses, deer, boars and bison
- Hunted together

?! Get this!

Cave lions did not get their name because they lived in caves. It is because many intact skeletons have been found in cave bear habitats. This suggests that the cave lion was an opportunistic hunter that preyed on hibernating cave bears.

Giant Ground Sloth

Megalonyx jeffersonii



While today's sloths are small bodied and weigh less than 9kg, their extinct relatives were much larger and were forced to live on the ground due to their size.

The largest of the ground sloth family reached the size of an ox when fully grown! That's almost 1000kg and around 3m long. Just like their modern tree relatives, giant ground sloths were slow and awkward creatures due to their rotated feet which meant they walked on their ankles and pinkie toes. Their long, clawed limbs helped in foraging, grabbing branches and stripping leaves from trees. They were also used for protection from predators.



?! Get this!

Megalonyx jeffersonii was named after Thomas Jefferson! The president, who had an interest in fossils, was credited with discovering the extinct sloth in 1797 when he was preparing a paper on a set of bones sent to him by a friend.

Fast facts

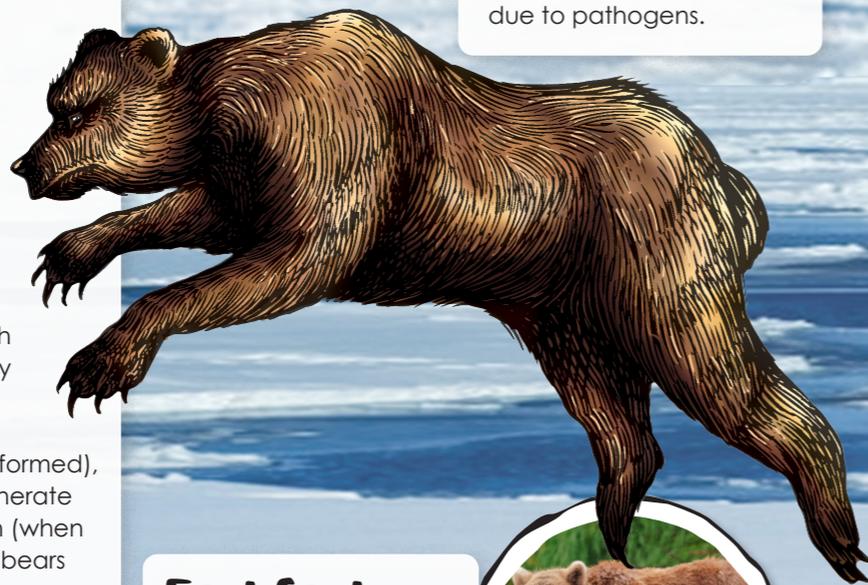
- Herbivore
- Teeth and jaws were adapted for hunting or powerful tearing and chewing

575 bones belonging to 22 ground sloth adults and teens were found in Tanque Loma in a pit. It's likely that they were wallowing together in the shallow water of a marsh. But, because the sloths contaminated the water with their faeces and later ate the contaminated plants and drank the polluted water, they died due to pathogens.

Cave Bear

Ursus spelaeus

Think of the largest bear you can imagine... and then think bigger – that's the size of the cave bear! Male cave bears weighed between 400 and 500kg, with a body length of up to 3.5m! Females were a little smaller (weighing around 250kg), which initially led scientists to believe that they were 'dwarf' versions of male cave bears! During glaciation periods (when temperatures decreased and glaciers formed), cave bears grew bigger in order to generate more body heat. During interglaciation (when temperatures became warmer), cave bears returned to their smaller, normal size.



Fast facts

- Omnivore
- Spent most of their time in forests and caves
- Distant cousin of the brown bear

?! Get this!

The large skulls and teeth of cave bears initially misled scientists to believe they found dragon bones!

Where did all of these giants go?

Around 10 000 to 12 000 years ago, most of these giant mammals from the Ice Age went extinct. Palaeontologists have different ideas about why this happened. The first theory has to do with climate. Changing temperatures influenced the growth of vegetation that animals grazed on. This change in the grasses and plants meant that herbivores were getting far less nutritious food than they were used to, which led to their downfall. The melting of ice sheets also meant that animals had to move to new ecological zones and adapt to new seasons of summer and winter.

Another theory is that the arrival of humans led to the extinction of many Ice Age mammals, since they were hunted for their meat. Several fossil sites in the southwest US found mammoth bones marked by spear heads made by humans. Many of these large animals, like mammoths, had slow reproduction rates which made it difficult to keep the birth rate higher than the death rate and ultimately led to their extinction.

How important are these giants to ecosystems?

Both large and small animal species (and their interactions with each other) are vital to a thriving ecosystem. They ensure that the ecosystem is stable and strong. Large mammals carry out pest control, distribute seeds and spread nutrients by walking long distances and pooping out digested vegetation. They also shape and create homes for smaller animals by pushing over trees. This means other species can share the habitat. If this changed, the remaining animals may die or move away, resulting in a less stable and more vulnerable ecosystem.

What lessons we can learn from the Ice Age?

The ghosts of Ice Age mammals can teach us valuable lessons about what happens to our ecosystem when species go extinct. Just like at the end of the Ice Age, the large mammals of today are endangered. They face threats from hunting, growing cities demolishing their habitats, and increasing temperatures that make it hard for them to find food and survive. These threatened species – like rhinos, pandas, tigers, and polar bears – greatly influence their ecosystems. Threats to these giants also mean threats to the smaller animals left behind.



NEW FORMULA

SQUEAKY CLEAN

BY ANDREA VERMAAK

DESIGN BY KADI

The History of Bathing

Not only do we like to look and feel clean, but we understand more and more the importance of personal hygiene. Cleaning ourselves has become part of many people's everyday routines. If we're fortunate, we have the choice of a bath or shower.

But did you know that there is a long, interesting history of bathing? Where and when did people start bathing, and how often did they bath? Also, how did people bath, especially in different climates?



Bathing in ancient cultures

The ancient Greeks were the first to build public bathhouses. Yes, you've guessed right – people bathed together in big pools that were very much like our modern swimming pools. Bathhouses were more like spas than our local public pools and could be found in many gymnasia.

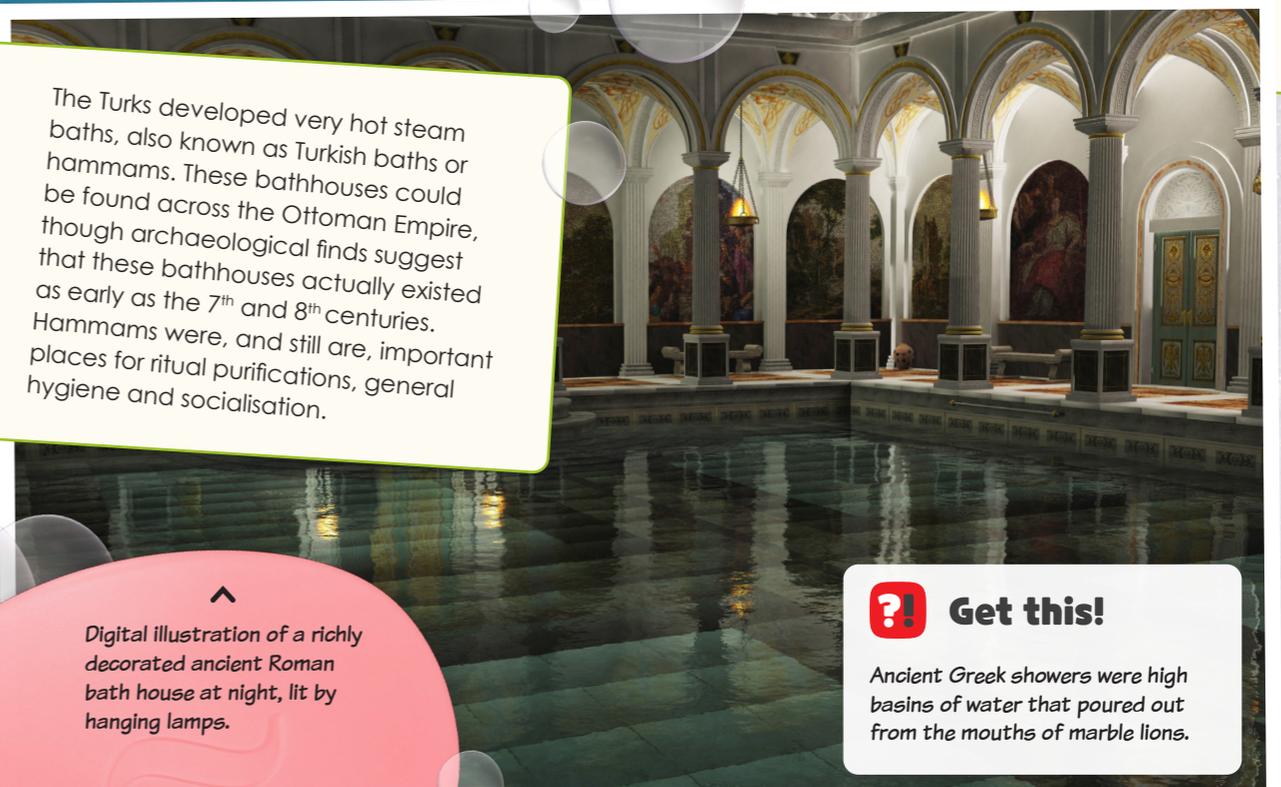


Bathtub from the Palace of Nestor in Pylos, Greece.



Jean Jacques Francoise Lebarrier's 'A Female Turkish Hammam'.

The Romans and Turks followed in the Greeks' footsteps. Bathing was a daily social event for the Romans, who built bathhouses across Europe. Some Roman bathhouses hosted as many as 3 000 people a day. Many Roman baths were heated from underneath. A few of the large bathhouses offered exercise, entertainment and social activities. A few even featured art galleries, libraries, lecture halls and meditation rooms.



The Turks developed very hot steam baths, also known as Turkish baths or hammams. These bathhouses could be found across the Ottoman Empire, though archaeological finds suggest that these bathhouses actually existed as early as the 7th and 8th centuries. Hammams were, and still are, important places for ritual purifications, general hygiene and socialisation.

Digital illustration of a richly decorated ancient Roman bath house at night, lit by hanging lamps.

Get this!

Ancient Greek showers were high basins of water that poured out from the mouths of marble lions.



Medieval superstitions

We know today that washing is important to keep us safe from getting sick. People in the 14th century believed the opposite. Though there were bathhouses in many towns, people thought that diseases (like a plague called the Black Death) could enter their open pores while they bathed. Many stopped bathing and believed that a thick layer of dirt would help to keep them safe. This idea lasted about 500 years!



Phew!

Weirdly enough, clean clothes were still important even if people didn't bath often. Clothes showed social status and helped to disguise body odour. People also wore perfume or small bunches of sweet-smelling flowers to hide any bad smell.

?! Get this!



The medieval rich bathed at home in large wooden tubs. A linen cloth was laid in the bath to protect the bather from splinters.

In Scandinavia, where the climate is much colder, people detoxed and cleansed in saunas. The oldest known saunas were Finnish and were pits dug in a slope. Stones were heated in a fireplace and water was thrown on them to produce steam and heat that made bathers sweat. Modern saunas can still be found across Scandinavia and in many spas globally.



1802 illustration of 'A Finnish Bath'.



Photo of a Japanese bath.

Further east, the Japanese have a rich history of bathing. Japanese bathing culture began in the 6th century as a Shinto purification ritual known as Misogi that's still practiced today. There were later free saunas in Buddhist temples, while the wealthy had shallow wooden baths in their homes. Later, many visited public baths (*sentōs*), or hot springs (*onsen*) daily. Many still visit *onsen* today.



Modern bathing

It was not until the mid- to late 18th century that people began to think again about the benefits of bathing. By the end of the 19th century, many wealthy British and American homes had private baths and hot running water. It was not until the 20th century though, that indoor plumbing became common in average households. People started to warm to the idea of a daily bath.

There are still many places though, even in South Africa, where people don't have any access to clean water, never mind a bath or shower. So, washing in our modern times may not be so different from the past after all...

^ The interior of the 7 star luxury Burj Al Arab royal suite bathroom.

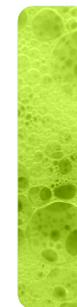
Save water!

For centuries, people had to fetch and carry water to their homes, sometimes from far away. If they wanted a hot bath, they had to fetch lots of water and heat it over a fire. So, bathing was a luxury. Many just washed their face and hands in a basin of water.

To save water, families in the early 20th century all bathed in the same water. They'd bath from oldest to youngest. This is thought to be where the saying, "Don't throw the baby out with the bathwater" comes from.

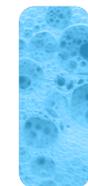
Even though many of us have the convenience of clean, running water in our homes today, we should still think about how we can save water. Instead of a bath, have a quick shower. While you use about 80 litres of water for an average bath, you only use about 48 litres during a five-minute shower with a standard showerhead.

80 litres



Bath

48 litres



Shower



A bath a day...

While washing often is healthy and helps us avoid smelling bad, we don't actually have to bath or shower every day. Dermatologists recommend washing every second day, or two to three times a week. Dr Robert H. Shmerling, at Harvard Health Publishing, says that washing and scrubbing, especially with hot water, removes a natural layer of oil from normal, healthy skin. So, washing every day may leave your skin dry and itchy. It also removes "good" bacteria and other microorganisms that help us to develop a healthy immune system.

But – and this is a big but – we should still wash often. It's especially important to wash your hands very often. This helps to stop the spread of diseases, especially if you share things that you touch with other people. So, sure, skip tonight's shower by all means. Just remember that some things, like your hands, should definitely stay clean!

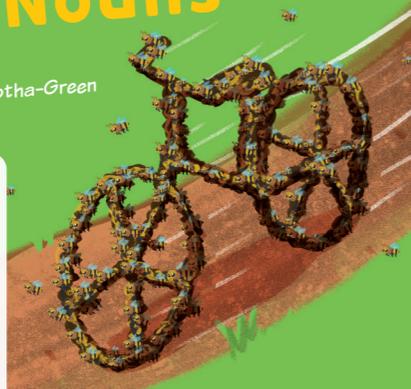
WHO'S WHO IN THE ZOO?

Outrageous Animal Collective Nouns

Words by Su-Mia Hoffmann
Illustrations and layout by Alexandra Botha-Green

Bike of bees

Considering the bicycle was only invented in 1817, this is a really weird collective noun. But a 'bike' of bees has nothing to do with a bicycle. The word 'bike' comes from an old English word for nest, colony or swarm.



Get this!

The German inventor Karl von Drais made the first bicycle. He called it the swiftwalker.

Rhumba of rattlesnakes

When two male rattlesnakes fight, it looks like they are doing the slow weaving followed by quick movements of the American Rhumba dance! Slow-quick-quick, slow-quick-quick...



Glaring of cats

A group of cats is also called a clowder. A glaring is especially used when the group of cats is unfamiliar with each other. If you've ever seen the fierce look a group of cats give you, you can understand how accurate this collective noun is!



The English language has some outrageous collective nouns, especially for animals. Most of these collective nouns, or terms of ventry, come from the Late Middle Ages. Specifically, from books like the *Boke of Seynt Albans*, first published 1486. *Boke of Seynt Albans* (also known as *The Book of Hawking, Hunting, and Blasing of Arms*) and similar works were books written for the nobility as guides on noble life, including hunting. These books included whimsical lists of collective nouns that made their way into common usage over time. Let's have a laugh and look at some of these silly collective nouns.

Parliament of owls

Owls are traditionally associated with wisdom. In Greek mythology, the owl is the symbol of Athena, the goddess of wisdom and reason.



Crash of rhinos

A group of rhinoceroses is called a crash. They usually live together in groups of up to twelve rhinos. When threatened, rhinos charge and can reach speeds of 60km/h. Imagine the crash when this 700kg African unicorn runs into you!



Murder of crows

Just like an unkindness of ravens, this poetic collective noun could come from the superstitious association of these jet-black birds with witches and death. There is even a belief that if you see five crows together, you are about to get sick, and if you see six crows together, someone is going to die! But don't let these silly superstitions ruin their reputation: ravens and crows are very intelligent and perhaps their association with death also comes from the fact that these clever omnivores are often found where something died because they eat carrion, just like vultures.



Tower of giraffes

At 4.6 – 6.1m long, the skyscrapers of the African grasslands definitely tower above everything else! Giraffes are the tallest land animals on Earth.



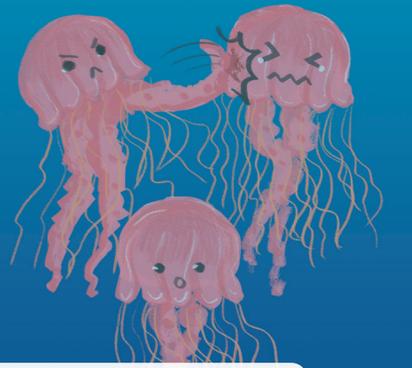
Flamboyance of flamingos

To be flamboyant means to be bright, colourful and attract attention because of confidence and style. This perfectly describes our pink feathery friends, the flamingos! Flamingos flock together in groups of thousands. These fabulous creatures eat shrimps, insects and algae in watery areas like salt flats, lakes, lagoons and swamps.



Smack of jellyfish

Jellyfish have a painful, venomous sting that will definitely feel like a smack to the system! A group of jellyfish is also called a swarm or a bloom. Jellyfish swim in deep and shallow waters and even a beached jelly can smack you with its sting, so be careful when you encounter one!



Shiver of Sharks

Other words for a group of sharks are a gam, frenzy, herd or school. Of course, seeing a group of sharks will make you shiver. It could also come from the fact that sharks are cold-blooded.



HOP ONTO A SLACKLINE

Words by Kendall Behr
Layout by Meaghan Koen
Illustrations by Lené van Jaarsveld

Slacklining is a fun way to challenge your balance and makes a great weekend activity. All you need is two trees or posts, a slackline, and a ratchet!

?! Pro Tip!

In the summer, set up your slackline across a pool so that when you fall, you just splash into the water.

What is slacklining?

Slacklining is the sport of walking on a wide strap (about 5cm wide), like a trapeze artist in the circus. The difference between slacklining and trapeze artists is that trapeze lines are much narrower, more like a cable. Also, slackliners usually put their lines up close to the ground, unless they are highlining, which is when you walk between the top of two mountains or buildings.

Where to buy a slackline

- Viper Slacklines (Cape Town, but ship nationally)
- Mountain Mail Order (online store)
- SlackGear (online store)
- Slackline South Africa (online store)



HOW TO START SLACKLINING

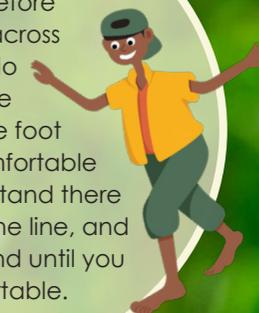
1

Put up a slackline between two trees, or two other strong anchor points. Keep it low to the ground so that when you fall, you won't get hurt.



2

First learn to balance before trying to walk across immediately! You do this by straddling the line and choosing the foot that feels most comfortable to put on the line. Stand there with one foot on the line, and one of the ground until you feel comfortable.



3

Try to stand up on the foot on the slackline. Get an adult to hold your hand and help you up, if you like. Keep your knees slightly bent.



4

Once you can stand on the slackline with one foot, you can start walking along the line. It helps if someone holds your hand in the beginning, but don't be afraid to fall off. Put your arms out at the side rather than hanging them down.



5

Keep practicing! The more you move, the faster your body learns which movement keeps you on the slackline and which movement makes you fall off.



?! Pro Tip!

Make sure to look out in front of you. Don't look down, because that will throw your balance off!

Slacklining is an easy sport to try at home, because you don't need a lot of special equipment. It's perfect for summer, because you have the most balance when you do it barefoot! It will also improve your balance and is a fun way to hang out with friends.



Masterful Maze



 **How to play**

Yum! Some tasty creepy crawlies have gotten trapped in the sticky spider's web. Guide the spider through the mind bending maze, catching some bug snacks as you go along.

Hint: There's more than one spot to enter the maze, but only one is correct.

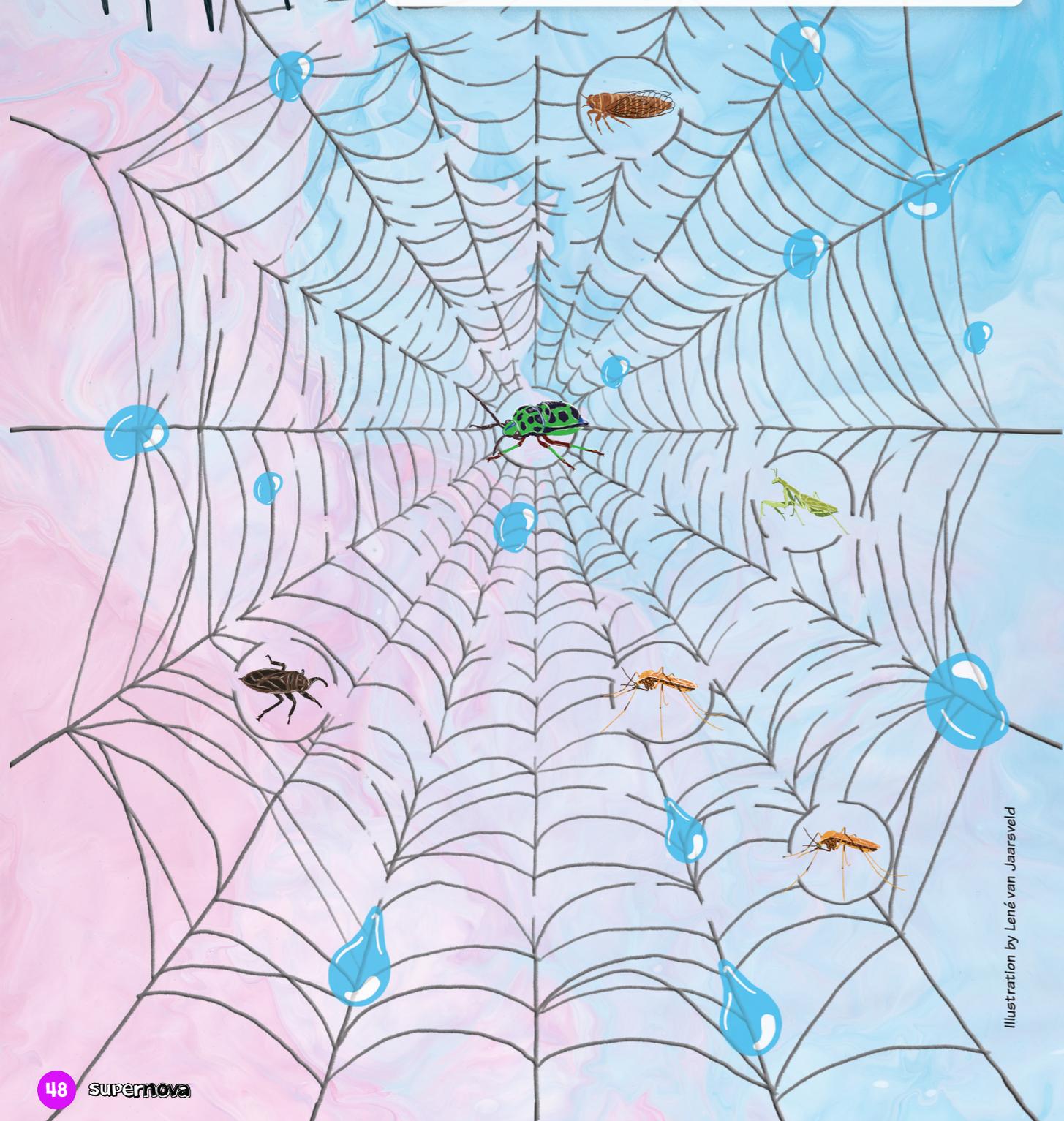
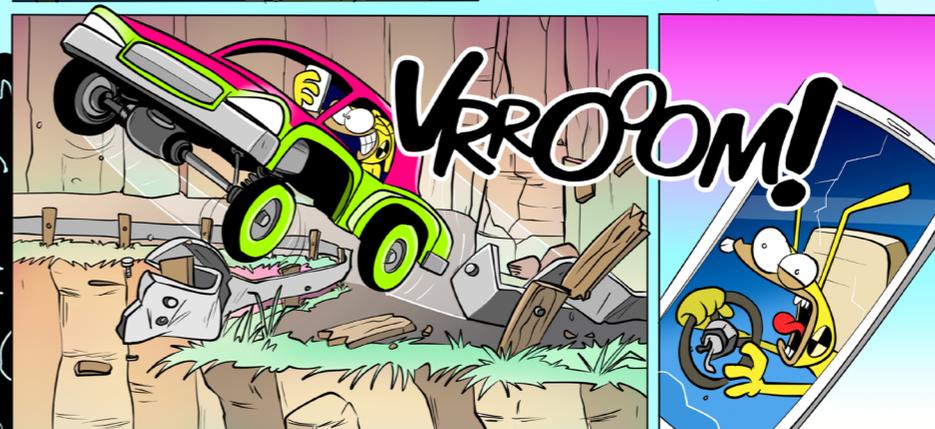
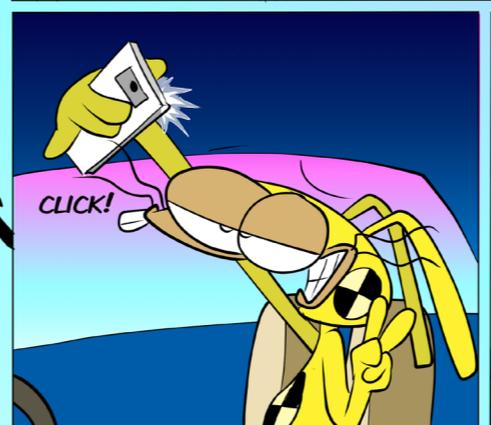
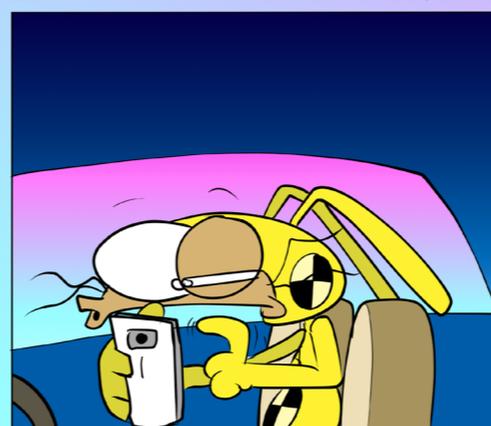


Illustration by Lené van Jaarsveld

DOCTOR RIP

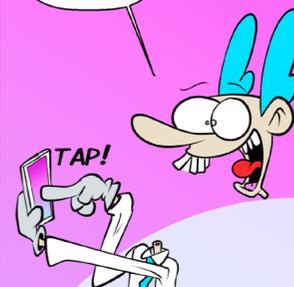
WE DIE BY DISTRACTION



Created by Freg and Michel Quintin. First published in Docteur RIP 1, by Editions Michel Quintin, Canada.

DOCTOR RIP EXPLAINS

THERE WE GO - SENT!



IN THE USA, 6000 PEOPLE DIE EVERY YEAR WHILE TEXTING AND DRIVING.



TEXTING WHILE DRIVING MAKES YOU 23 TIMES MORE LIKELY TO CAUSE AN ACCIDENT.



OH, NO! WHILE I WAS CHATTING AWAY I FORGOT TO FILM DARWIN. CAN YOU DO THAT AGAIN, DARWIN?



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