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Supernova

The mag for curious kids

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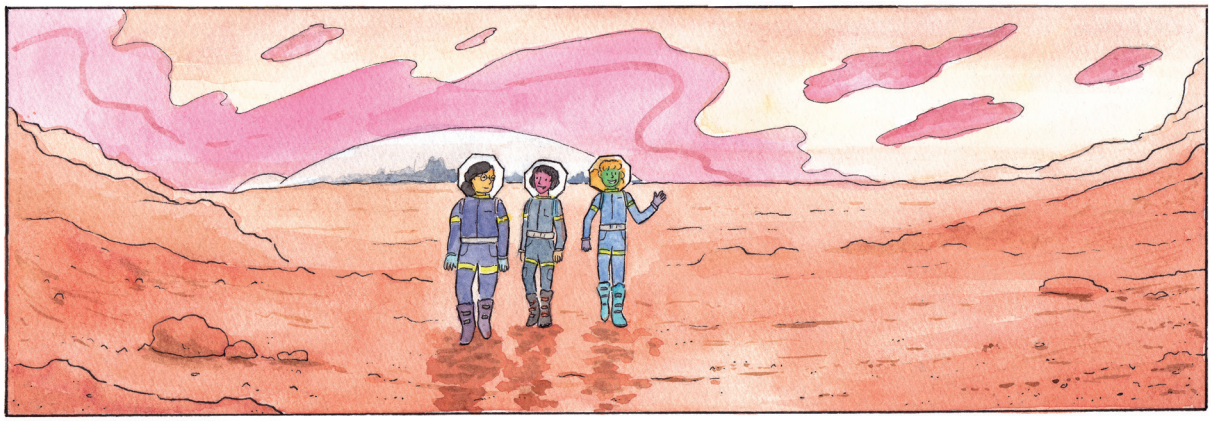
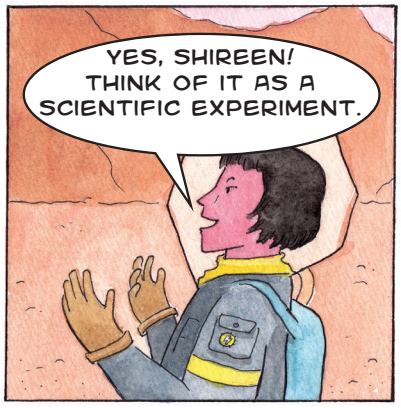
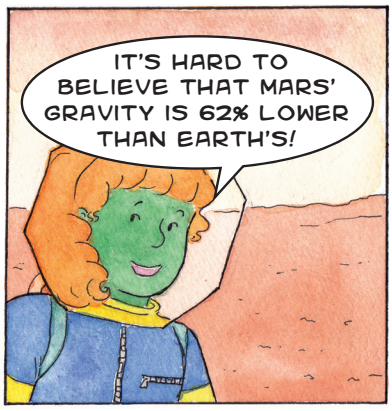
BK PUBLISHING

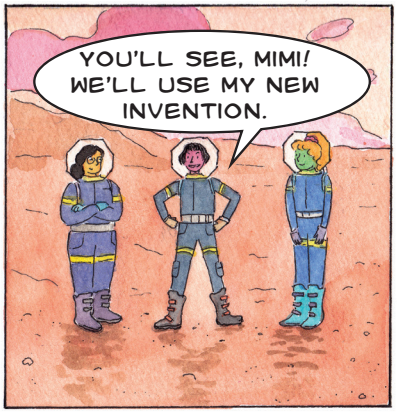
Story and artwork
Maya LeMaitre

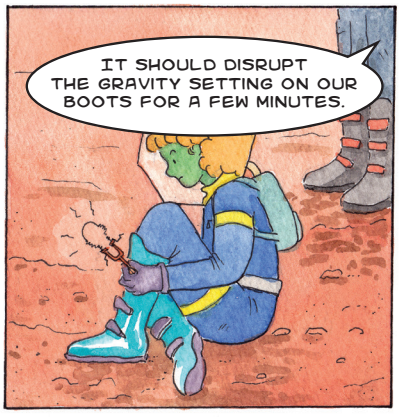
MIMI'S LIFE ON MARS

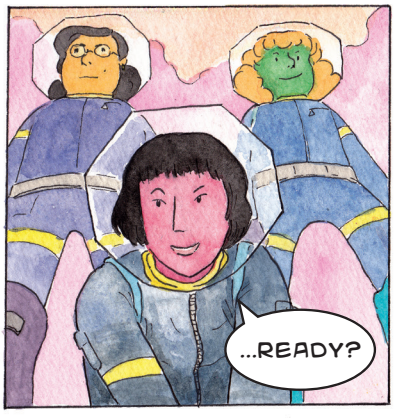


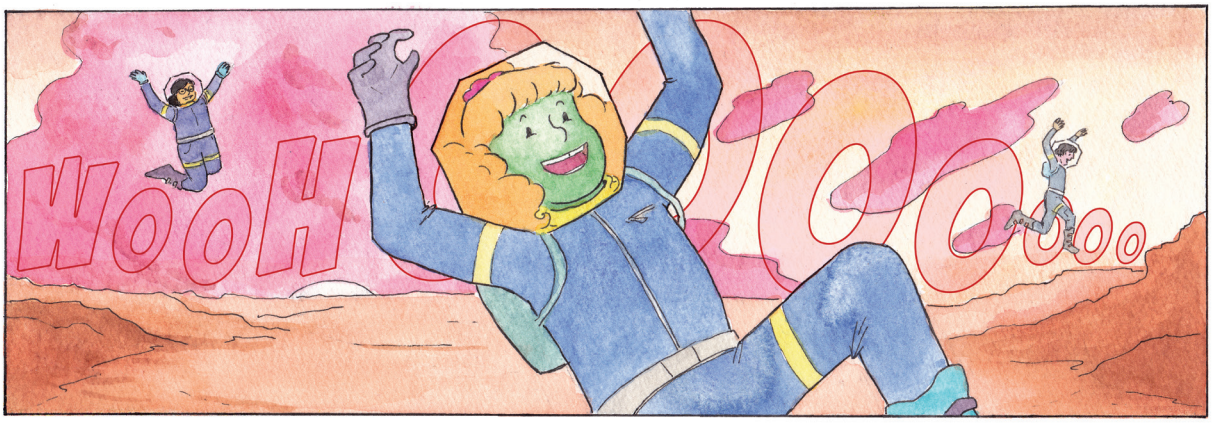












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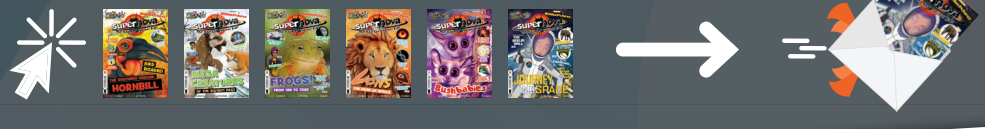

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Hi SuperKids

Candice

So we've just completed another trip around the sun! And if there's anything we've learnt over the last year, it's that life is always changing, evolving and growing. But, even though life is always changing, there's one thing that should forever stay the same: our gratitude. Gratitude is all about focusing on what's good in our lives and being thankful for the things we have.

Here at Supernova, we're grateful for delicious ice cream on a hot summer day, and building puzzles and playing games with family and friends!

We are also thankful for having great teachers and learning awesome things, and enjoying the sunshine and the wind in our hair. And of course, to top it all off, we are grateful to be able to create great new issues of Supernova which allow you to travel distant lands, build awesome crafts and solve the coolest challenges!

We are so excited to have you along for another trip around the sun!

Do you have the gratitude attitude? Why not show it by making your own gratitude list or picture, of all of the things you are grateful for this year?

Super news!

We've just launched the new Supernova Premium Subscription! Some of the *Supernova* team are here to tell you all about it.

Siya

Wow guys, I can't believe how cool the Supernova Premium Subscription is! My favourite magazine sent by courier right to my door, every 2 months!

Nikita

*Yeah! You also get **exclusive SN Online feature articles** and **Emags**. And we'll send you an awesome **free gift** to surprise you in your birthday month!*

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Check it out for yourself at kidsmag.co.za!

Looking for more? @supernovamag supernovamagazine

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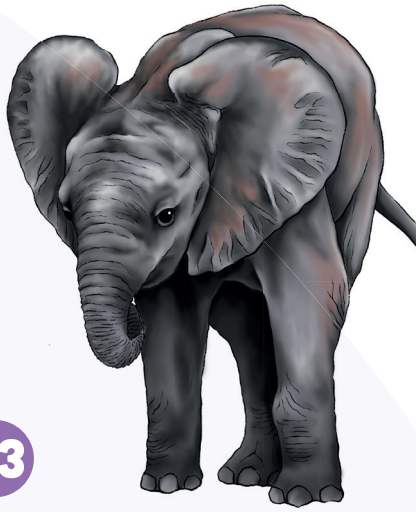
The Regulars

The Features



The Big Picture
Carefully pull out the centrefold posters and put your favourite side up on your wall.

Answers for activity on page 46.

1 – RIGHT
2 – LEFT
3 – RIGHT
4 – RIGHT
5 – RIGHT
6 – LEFT
7 – RIGHT
8 – LEFT
9 – RIGHT

Solution for maze on page 47.

Ask Jules?

FRANCO (22) from Meyerspark asked us:

Why do we dream?

Jules

There are many theories about why we dream, but no one knows for sure. Some researchers say dreams have no purpose or meaning. Others say we need dreams for our mental, emotional, and physical health. One popular theory about the purpose of dreams is that they help you store important memories and things you've learned, get rid of unimportant memories, and sort through complicated thoughts and feelings.

Freud, an Austrian neurologist and the founder of psychoanalysis, believed that our truest wishes are revealed in our dreams. He argued that the random images in your dreams are actually connected to your deepest desires and hopes. If this is true, paying close attention to your dreams may reveal some interesting information about your fantasies for the future!

ECO-WARRIOR

Not all superheroes wear capes, and this eco-warrior is certainly proving that! Meet Tyler Prince (9), a young creative thinker who is passionate about recycling, helping others and caring for the environment.

Tyler is a firm believer in recycling and collects bottle tops and bread tags, which he then donates to various organisations. During the COVID-19 pandemic, Tyler saved up all of his money to donate essential items to a homeless shelter. He also teamed up with a local company to make sure that each learner and teacher at his school now have access to a face shield!

Along with providing over 200 educational reading books for foundation classes, Tyler also participates in #WorldCleanUpDay, and encourages his friends and family to do the same. He convinced his mom, dad, brother, and all their friends to help clean up parks around their neighbourhood. His mom says that Tyler motivates his family to keep recycling over Zoom video calls.

Tyler is the perfect example of how cool it is to be kind and how any act of kindness, from the smallest to the biggest, can change the world. Thanks Tyler for spreading kindness throughout your community!

Jules

We love to showcase your work and share your thoughts and experiences. So, make sure to send your cool creations, questions, thoughts and everything else to us to get it featured here! 😎

Would you risk living 99,602 million km away from home?

Jules

After Earth, Mars is the most habitable planet in our solar system. We asked a number of kids whether they'd live on Mars or not. Here's a peek at some of their responses, check out the rest in The Chatroom!

TAMARA (11)

I would live on Mars so that I can meet aliens. Also, so I can see what it looks like. People say Mars is red with water but I don't believe them.

SN

EJ (14)

No. It's cold. I'd have to wear a mask just like now, and I don't like wearing a mask already.

SN

Read more answers from *Supernova* fans on page 14!

Lend Me Your TONGUE

Photos by Christian Gloor & Andy Heyward

"Hey Mr. Fish, cat got your tongue?" Nope! Actually, it's the parasite *Cymothoa exigua*, commonly known as the tongue-eating louse. Its name really is very descriptive because that is exactly what it does: it eats the tongue of its host fish! *C. exigua* are actually isopods, which are a type of crustacean like crabs or shrimp. The tongue-eating louse has evolved into a very specialised animal that survives on the blood of fish. Essentially, it is a marine vampire who loves tongues. Yuck!

The louse drifts in the ocean until it finds a host fish and enters through its gills. Once inside, it bites on to the tongue of the fish and stops the blood circulation. This causes the tongue to die and fall off. The louse replaces the function of the tongue and survives on nutrient-rich blood and mucus inside the fish mouth! The louse and the fish can survive happily together, and the louse will only die when the fish dies. Best of all, you can find these fascinating crustaceans all along the South African coastline! Look out for one the next time you go fishing.

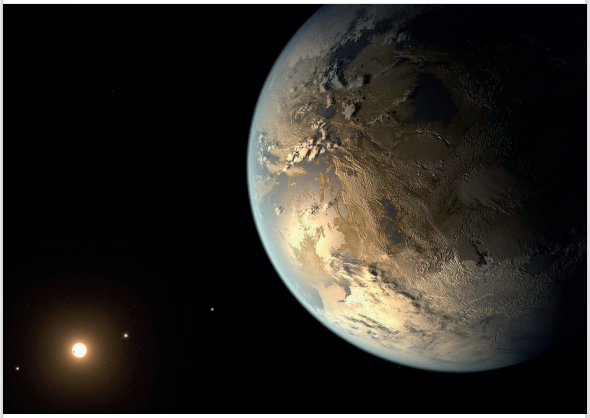
New Discoveries

The news in 2020 was pretty dominated by one thing: COVID-19. But there were so many other noteworthy discoveries to get excited about! Here are some fascinating findings that you may have missed in 2020.

First up, researchers have discovered that the Banded Langur monkey is no longer one species, but three! There are now three identified separate species, which are some of the rarest and most endangered primates in the world. These mischevious monkeys were found in the wild jungles of Singapore, Indonesia and the Malay Peninsula.

Photo by Aung Ko Lin, Fauna & Flora International

Planet Kepler-186f by NASA
Somewhere in outer space



Astronomers have found 24 planets, orbiting around other Suns, that could be friendlier to human life than our own Earth. #movingday #distantworld #newlifenewstart

Cryodrakon borealis by PaleoEquii
Alberta, Canada

This #FrozenDragon is one of the biggest flying creatures ever discovered - about as tall as a giraffe! Its head is also 3.5 times bigger than its body. #bighead #watchout

The Red Widow by Andrew Baxter
Table Mountain, South Africa

With a body only 1 cm long, this local spider from Cape Town might form part of a brand new species! #strawberrybutton

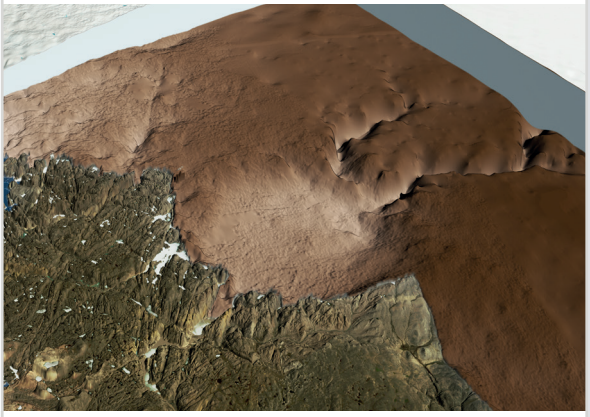
Sarcophagi by Khaled Desoucki
Saqqara necropolis, south of Cairo

Egyptain archaeologists discovered 100 sealed wooden coffins which are 2 500 years old! They also found mummified cats, crocodiles, cobras and birds. #wheresmymummy

Hunga Tonga-Hunga Ha'apai
Pacific Ocean

An underwater volcanic eruption in 2014 created a new island in the kingdom of Tonga. It is made from ash and volcanic rock and has a life span of 6 to 30 years. #getyourfloatiesready

Hiawatha crater by NASA
Northwest Greenland



12 000 years ago, a meteor impact resulted in a large crater hidden under the Greenland ice. It is 30km across and 300m deep - that's bigger than Paris! #iceicebaby #2cool4school

The Saxophone

FUN FACTS!

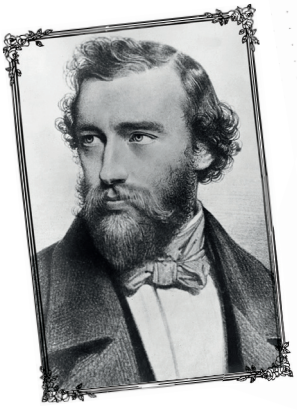
The saxophone is well known as both a classical and jazz music instrument.

There are 6 different sizes of Saxophones

The largest saxophone in the saxophone family is the sub contrabass. It is over 2,25 metres tall!

The famous saxophonist, Kenny G, holds the world record for the longest note ever played on a Saxophone at 45min 47sec.

Adolphe Sax is the only person to have created an instrument all by himself.



The saxophone is played alongside true brass instruments. But it belongs to the woodwind family as it has a wooden mouthpiece called a reed.

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

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Product Designer

Hello!
My name is Welmarié Momberg, I am an Industrial Designer who loves to design and make beautiful objects that people could use. I also teach university students about designing products.

What is a Product Designer?

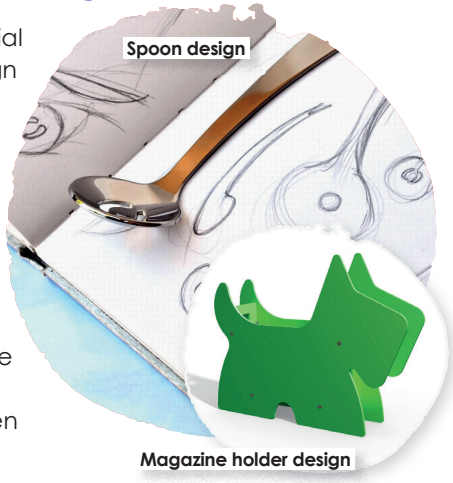
I design and manufacture physical products. It is the perfect combination between an artist and a technical-minded person. We create products that look beautiful and work well. It is therefore important to know how things are manufactured and how users will interact with the product. All of the physical products around you were designed by someone, and that is exactly what we do.

What does a typical day look like for you?

Every day is different. You work on different design projects. This involves always learning new things about design, manufacturing, materials, technology, and the users of products. You will sketch, create three-dimensional objects with Computer Aided Design (CAD), get the product manufactured, and test how it would be used. If the product is ready for the market, it will be distributed to different platforms.

What qualifications do you need to do your job?

You can study Industrial Design, Product Design or Three-Dimensional Design. In South Africa, there are only 4 places where you can study this: The University of Johannesburg, Tswane University of Technology, The Cape Peninsula University of Technology or Open Window.



Spoon design

Magazine holder design

What is the most interesting part of your job?

We get to play around with new technologies such as 3D printing and we test products in the market to see how they work and how we can better them.

What are some of the challenges of your job?

You need to solve problems quite a lot, but this is fun too!

Welmarié's advice

Do a lot of sketching, be curious about life and make stuff!

The Owl House

Words by Andrea Vermaak

Andy


Roxanne Reid

In the heart of the Karoo in the Eastern Cape, lies Nieu Bethesda, a village that boasts an intriguing work of art – The Owl House. I couldn't wait to learn more about Helen Martins and her unique home!


Benoit Knox


Benoit Knox

There are owls all over the house.

Helen Martins

Born in Nieu Bethesda in 1897, Helen Martins rarely left her home, especially after her parents and husband died. She felt that her dull daily life needed light and colour, so she decided to decorate her house, both inside and out. Her work turned into a passion as she began to create more and more sculptures from concrete and different coloured crushed glass. These creations are what make The Owl House so famous today!

The Owl House

Helen took 31 years to transform her house – from 1945 to 1976. It is now a tourist attraction known as The Owl House. Her home is a magical, multi-coloured place of wonder inside. Helen replaced her window panes with coloured glass, and decorated the walls and ceilings with brightly coloured paint and patterns of crushed glass. She hung several mirrors on the walls to reflect daylight at different times of the day, as well as candle and lantern light during the evening.

The Camel Yard

An archway outside leads you into the Camel Yard. Inside the yard is a large procession of camels and wise men, all turned towards the 'east' (they're actually 'travelling' south). This scene is just one of many themes in and around Helen's home that are inspired by images and books.

Local labourers, particularly Koos Malgas, helped Helen bring her vision to life. Koos worked with Helen for 12 years until her death in 1976.

Inside the yard, you'll also find many cement owls with eyes made from glass bottles. They are on the boundary of the yard and give the house its name.

A sad ending

Helen died in 1976 at the age of 78. She suffered from arthritis and her eyesight became weaker and weaker, possibly from working with crushed glass. Maybe it's because she was afraid she would have to leave her home – it remains a mystery – but Helen took her own life.

The garden is filled with secret spots and hidden statues.

All the rooms in the house are brightly lit by coloured windows.

An inspiration to others

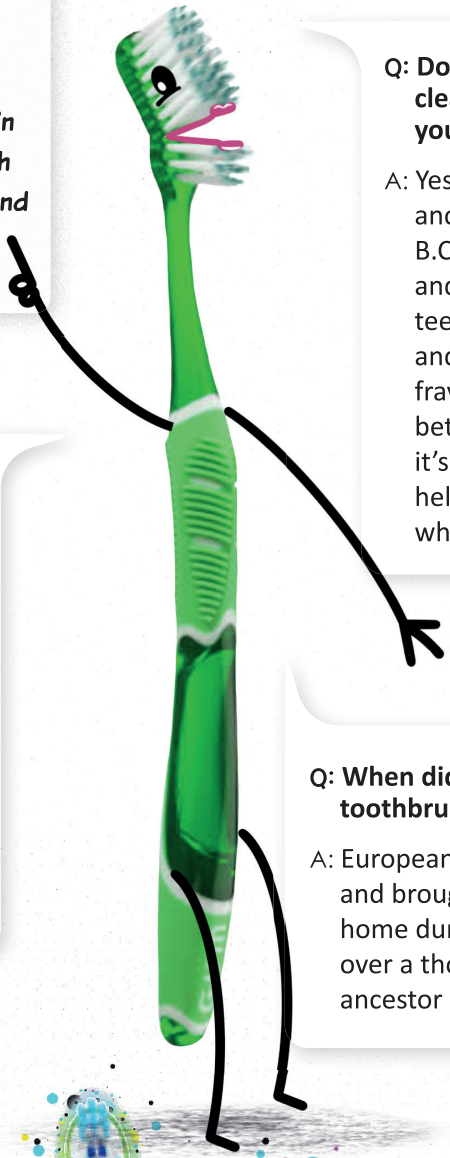
Though Helen's story is tragic, her colourful home is still a wonder to those who visit it. In fact, the Owl House and its story inspired South African playwright Athol Fugard, who lived in Nieu Bethesda, to write *The Road to Mecca*. It also inspired Sue Imrie Ross' book *This is My World*.

Talking to my TOOTHBRUSH

Words by Andrea Vermaak

Supernova

Today, after breakfast, I have a special appointment with my toothbrush. I'm not just going to squeeze some toothpaste over her new bristles and brush my teeth in silence, as usual. I'm going to catch up with this friend that I often take for granted and have a chat. Why? I'm curious to know her origins and what the future holds for her.



Q: Who were the first people to start using bristled toothbrushes like you?

A: The Chinese. My ancestor was created during the Tang Dynasty (618 to 907 A.D.). Then, in the late 1400s, Emperor Hongzhi designed a toothbrush that looks like a crazy-haired version of me. He was made of bone or wood, and his bristles were short boar hairs. However, poor people still used chew sticks, cloth or their fingers to clean their teeth.

Q: Do you know how people cleaned their teeth before you were around?

A: Yes, it's quite fascinating! In ancient times, around 3000 B.C., Egyptians used twigs and leaves to clean their teeth. The Romans, Greeks and Indians also used twigs, fraying one end to reach between their teeth. You see, it's the action of brushing that helps clean your teeth, not what you use!

Q: When did Europeans start using toothbrushes?

A: European travellers visited China and brought one of my ancestors home during the 17th century. That's over a thousand years after my first ancestor was used to clean teeth!

?! Get this!

Brushing removes plaque from your teeth, which prevents tooth decay and gum disease. It also helps to remove bacteria in your mouth which could make you sick. Don't forget to rinse me with water when you're done!

Q: What did your ancestors look like?

A: Quite different! Just like your clothes and hairstyle are very different to those of your ancestors', my ancestors were not plastic with nylon bristles like me. In the 18th century, they were made of bone. My poor relatives had bristles of Siberian hog hair, while my wealthier relatives had badger hair bristles. People who couldn't afford a toothbrush at all, used a rag to clean their teeth.

Q: When did people start using plastic toothbrushes like you?

A: The first nylon bristle toothbrush, the Miracle-Tuft Toothbrush, was made in 1938. Despite this, many toothbrushes that were mass produced in China still had boar or horse hair bristles up until the mid-20th century.

Q: Toothpaste is your best friend, but toothpaste hasn't always been around. Who did your ancestors hang out with?

A: My family were really good friends with soot and salt for a long time, and from about 1850, they had a close relationship with a powder made of chalk and soap.

Get this!

Believe it or not, it wasn't until after World War 2 that many started brushing their teeth every day. Soldiers were given toothbrushes and brushing was a part of their daily routine. When the war was over, they took this good habit home and more people started to buy toothbrushes.

Q: You said you're planning on retiring in about 3 to 4 months from now when your bristles start to wear down. Why do you retire so early and where will you go?

A: When my bristles are worn down, I can't help you to clean your teeth as effectively anymore, so it's best that I join my friends on a trash heap. Because we're mostly made of plastic, it's very bad for the environment. I am, like most of my relatives, unrecyclable.

Q: Oh no! What can I do to make sure that my next toothbrush friend is environmentally friendly?

A: You could look for one of my new relatives that is made from organic materials instead of plastic. For example, look for a toothbrush with a bamboo handle, or even one with a removable head. It'll help reduce waste from toothbrushes like me to less than 30%!

Supernova

How could I live without my toothbrush? She not only keeps my whole mouth healthy, but she has such an interesting history! It's really cool that she's encouraging me – and you! – to take care of our teeth, as well as the environment. I'm definitely going to look for a toothbrush that will help me to reduce my carbon footprint!

Would you live on Mars?

Words by Nikita Abreu
Layout by Meaghan Koen

The Chatroom

After Earth, Mars is the most habitable planet in our solar system. The planet contains water in its soil and is neither too hot nor too cold. Most importantly, the gravity on Mars is 38% that of our Earth's, and is believed to be sufficient for the human body to adapt. This means living on Mars is possible, but would you take the risk and live 99,602 million km away from home?

Aimee (6)

Nee! Ek hou daarvan hier! Mars is baie warm. Dis so warm dat jy kos kan kook! As jy kos op ietsie sit, dan wag jy vir 'n minuut, en dan is dit warm. Dan kan jy dit eet.

SN

Leah (6)

With my family and doggies, then yes. And as long as I can still get sweets and food.

SN

Kayleigh (9)

I would go to Mars if I can take my family and our dogs – Bubbles, Coco and Jessie. It would also be safer because there is no pollution.

SN

Joshua (13)

Yes, I love The International Space Station. If I live on Mars, we will live in places like that and there can be many tunnels to all the gardens. There's less gravity so I'll grow taller. And oh yes, there's no pollution! I'm going to be a space vet, so I'll look after people's pets because dogs can't breathe properly in space.

SN

Danae (13)

Yes - if it has food sources I would go. Mars would not be damaged, and I would not have to worry about COVID-19 anymore. But my family would need to visit me!

SN

Nalisha (13)

If I could go to Mars, believe me I would. Expansion and space sounds absolutely great. I guess it could be hard to adapt and leave everything behind, but it could also be a great adventure. A nice turn of events.

SN

Seth (12)

No. It's too hot and we would have to live in capsules with not much water. I would also need to walk around in a suit which I don't like.

SN

Jonathan (15)

No. It's very dangerous and a high risk. I won't be able to see my family and it also depends on the technology that's there. If they can get water then maybe it would be a new experience.

SN

Raven (6)

No, because I can never take off my mask and I don't want to see scary aliens. Maybe it would get messy on Mars with all the sand there. I also don't want to bounce and hit my head on the ground because of the different gravity.

SN

Claudio (15)

No, because to get there it will take long and I wouldn't want to go through that.

SN

The Chatroom

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

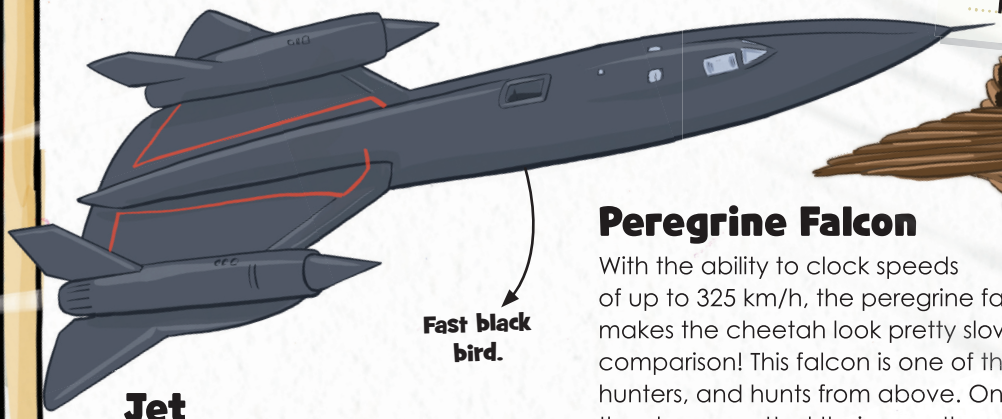
You can also Whatsapp us on 012 342 5347.

Life, the universe and everything

Fastest

Words by Candice Robertson
Illustrations by Benoit Knox

People have always been obsessed with fast things. While light is still by far the fastest thing in the universe (moving at 299791.82 km/h), there are many other speedy spectacles that will blow your hair back.



Jet

Sure, the peregrine falcon is pretty quick. But the king of the sky is definitely the Lockheed SR-71 Blackbird. It reaches incredible speeds of 3 530 km/h! Buckle up tight.

Peregrine Falcon

With the ability to clock speeds of up to 325 km/h, the peregrine falcon makes the cheetah look pretty slow in comparison! This falcon is one of the top hunters, and hunts from above. Once they have spotted their prey, they drop into a steep, swift dive, and fly faster than the speed of wind in a hurricane. You can fly, but you can't hide from the fastest animal in all the skies.

Cheetah

The fastest land animal can accelerate from zero to 10 km/h in three seconds flat. This is possible because of its large nostrils and massive heart and lungs, which help to circulate oxygen in the body. They also have semi-retractable claws which offer excellent traction. You definitely don't want to be caught in a cheetah's territory!

Rapper

The title of fastest rapper in 2016 goes to Twista, who can rap 280 words in a minute. This is around 11.2 syllables per second! Give it a crack and see if you can achieve this greatness without sounding like you're rambling in gibberish.

Freefall

In October 2012, Felix Baumgartner attempted the world's highest skydive from a height of 39 045 m. During this record-breaking skydive, he achieved a top speed of about 1 342.6 km/h. That means he was essentially a human projectile and broke the sound barrier in the process of sky-diving from the stratosphere!

Planet orbit

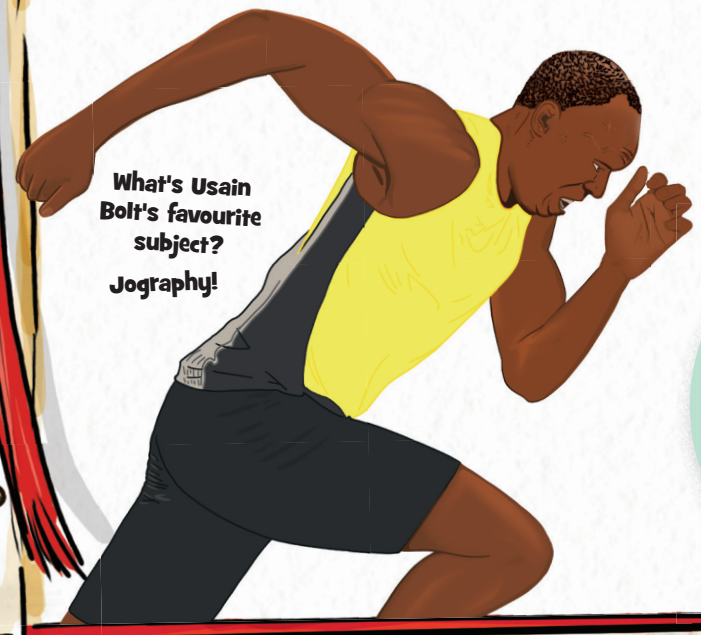
A year on Earth consists of 365 days. It might be nice to have Mercury's speedy 88-day year when you're looking forward to summer holidays. And we're probably better off than any friends we might have on Neptune, who have to wait more than 60 000 days between birthdays. But what about a year that comes around every 8.5 hours? Astronomers have found what they think is the shortest orbital period (or year) on a planet called Kepler-78b. This planet is small and similar to the size of Earth. It is also so close to its star that scientists call it a "lava planet". Far out!

Sneeze

One of our fastest spectacles starts right inside your very own body. Sneezes can travel up to 160 km/h – that's faster than you are legally allowed to drive on the highway! And just one of your sneezes creates more than 100 000 droplets that are released into the air. Yikes!

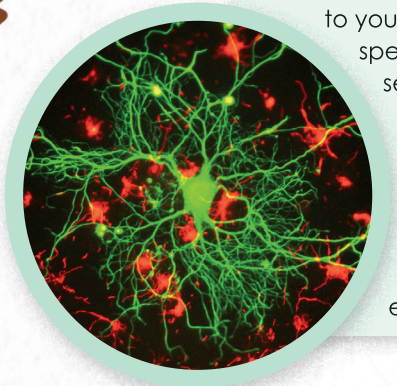
Athlete

We can't possibly have a list of fast things and not include Usain Bolt, the world's record holder for human speed. He set his record at the 2009 World Championships when he ran the 100m dash in 9.58 seconds. That's a max speed of 44 km/h! In other words, if we had a race with Bolt, then by the time you read this entire sentence you'd find that Bolt was starting a victory lap!



Messages in your body

Our brains contain very special cells called neurons which send information and instructions throughout the body. These messages are happening all of the time. About 100 billion neurons in your brain send 5–50 messages per second to other parts of your body. This allows you to process your environment, move your muscles, and even keep your balance! If you touch something slimy, your brain sends a message to your fingertips at the speed of 3 560m per second that tells them to move away. The same thing happens when you trip and you're about to fall, or when a bright light flashes in your eyes.



Would you eat a hamburger GROWN IN A LAB?

Everyone loves biting into a big, juicy, delicious hamburger! But would you still take an enormous bite if you knew it was made in a laboratory? In 1894, French chemist Pierre-Eugene-Marcellin Berthelot predicted that by 2000, humans would be eating lab-grown meat instead of meat from animals. Who would have thought that this prediction might come true? Biotechnology now makes it possible to grow our food in a lab, which could have many awesome benefits!

Words by Candice Robertson
Layout by Cameron Howes

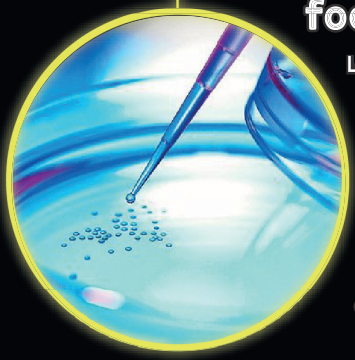
What is biotechnology?

Basically, it is technology based on biology. This technology uses biological systems, living organisms, or parts of them to create different products like food, medicine and chemicals. It has also made cloning possible! Biotechnology can be used to solve lots of problems, from making our products more efficient to reducing global warming.

Get this!

In 1997, Dolly the Sheep was the first mammal to be cloned from an adult stem cell.

How do you grow food in a lab?



Lab-grown food starts off as tiny stem cells that are safely and painlessly taken from animals or plants. Scientists then feed the cells nutrients. The cells grow and multiply to form our food. One muscle stem cell can easily grow into one trillion cells – that's a lot of hamburgers!

Why do we need lab-grown food?

The world's population is growing, and that means that there are more people on earth that need to be fed. Lab-grown food may be a solution to this! Overall, lab-grown meat is also made in a cleaner environment, which reduces the risk of contamination from bacteria such as E.coli.

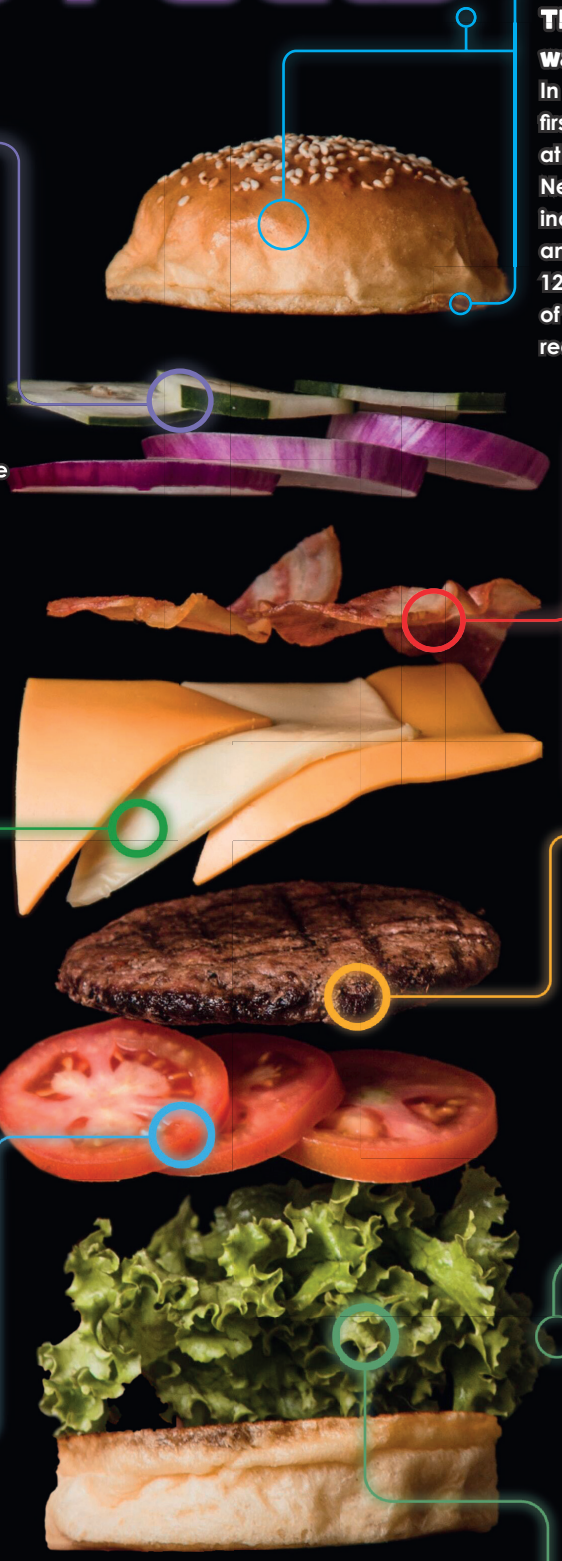
How does a lab-grown hamburger taste?

You're probably waiting to ask the big question... how does it taste? Currently, the meat being grown is purely muscle, so it is much leaner than the average hamburger. Scientists plan to incorporate healthy fats to give the meat a similar texture and taste to real meat.

Get this!

NASA has also considered using lab-grown meat in long-term space expeditions as a source of protein for astronauts.

7 Blockbusting Biotech Food Facts



The first lab-grown burger was very expensive

In 2013, Mark Post created the first beef burger grown in a lab at the Maastrich University in the Netherlands. It was made of 20,000 individually grown muscle strands and cost almost R4.5 million - that's 120 000 Big Macs! By 2018, the price of a lab-grown patty had been reduced to about R160.

Lab-grown meat reduces greenhouse gases

Advocates for lab-grown meat believe that biotechnology can make a huge impact on our greenhouse gases. It is a sustainable alternative to mass production farming, using 99% less land. A 2011 Oxford University study suggests that we can decrease our greenhouse gas emissions by as much as 96% by using lab-grown meat.

There are no fats or bones in lab-grown meat

Some people may miss eating or cooking with meat that has bones. Bones are a good source of calcium, but cannot be grown using biotechnology. However, no bones can be a good option for kids and older people!

Farmers are worried about the impact of lab-grown meat

Since biotechnology could eliminate the need for traditional farming methods, many farmers may lose their jobs!

Lab-grown meat is healthier than traditional meat

Lab-grown meat can contain more protein and polyunsaturated fatty acids than traditional meat. It also has lower amounts of saturated fats, which cause chronic diseases. Overall, it is a heathier option!

Even though lab-grown meat is healthier, it could lead to obesity

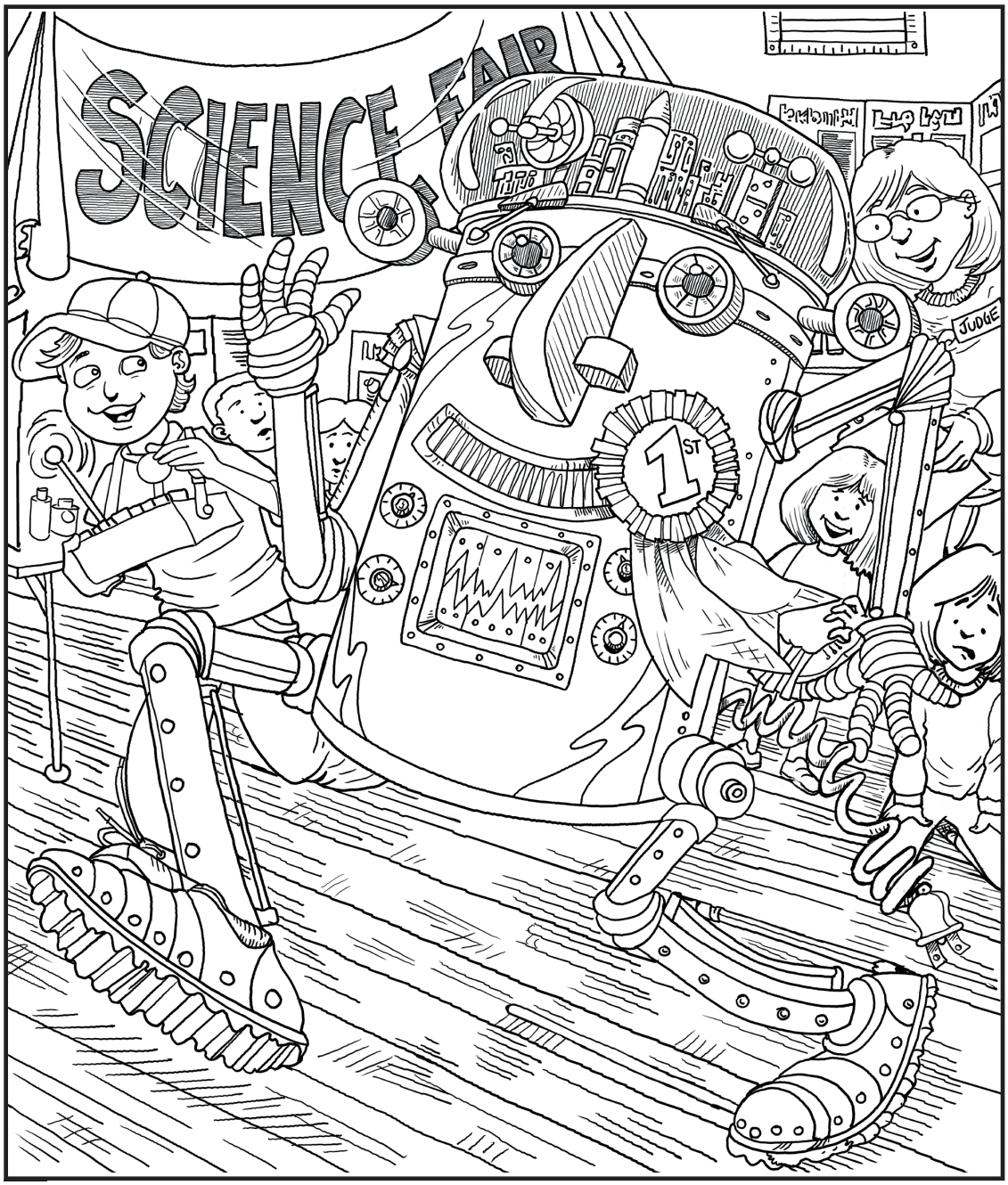
In the future, lab-grown meat might become cheaper and easier to mass produce than traditional meat. Researchers believe that this could encourage people to eat more, which will increase obesity and other related issues.

A variety of animal products will be grown in labs in the future

As of right now, scientists have successfully experimented with chicken and beef. In the years to come, they're hoping to create all kinds of animal products, including sausages, hot dogs, and bacon!

Highlights™
Fun with a Purpose™

Hidden Pictures™



toothbrush

sailboat

umbrella

cup

bell

domino

candle

crescent moon

crayon

sailboat

boomerang

pencil

slice of bread

fish

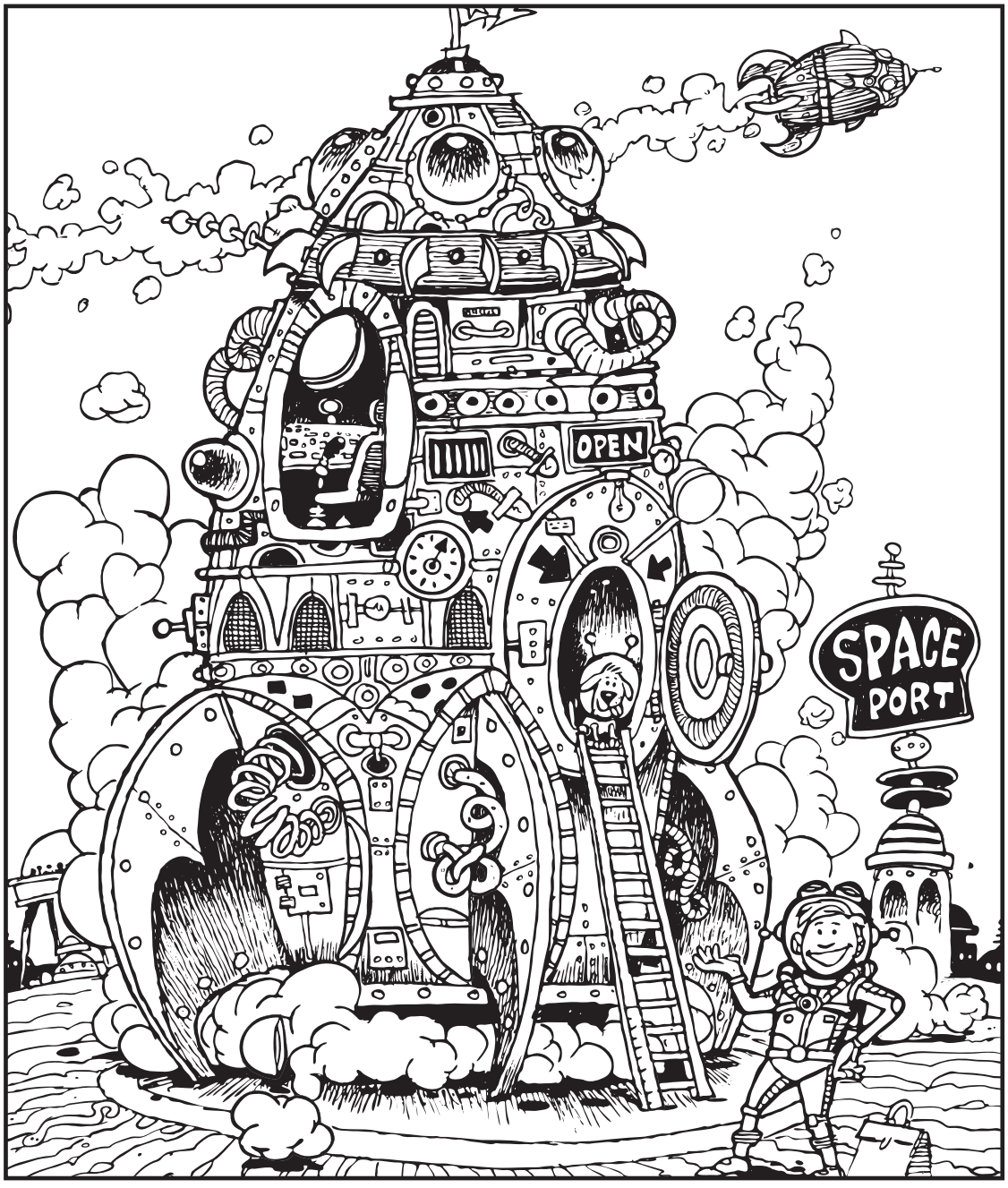
sneaker

hotdog

comb

ruler

crown



heart

baseball bat

axe

crescent moon

mitten

pennant

sock

slice of pizza

sailboat

lollipop

piece of popcorn

magnet

pretzel

ruler

canoe

bowl

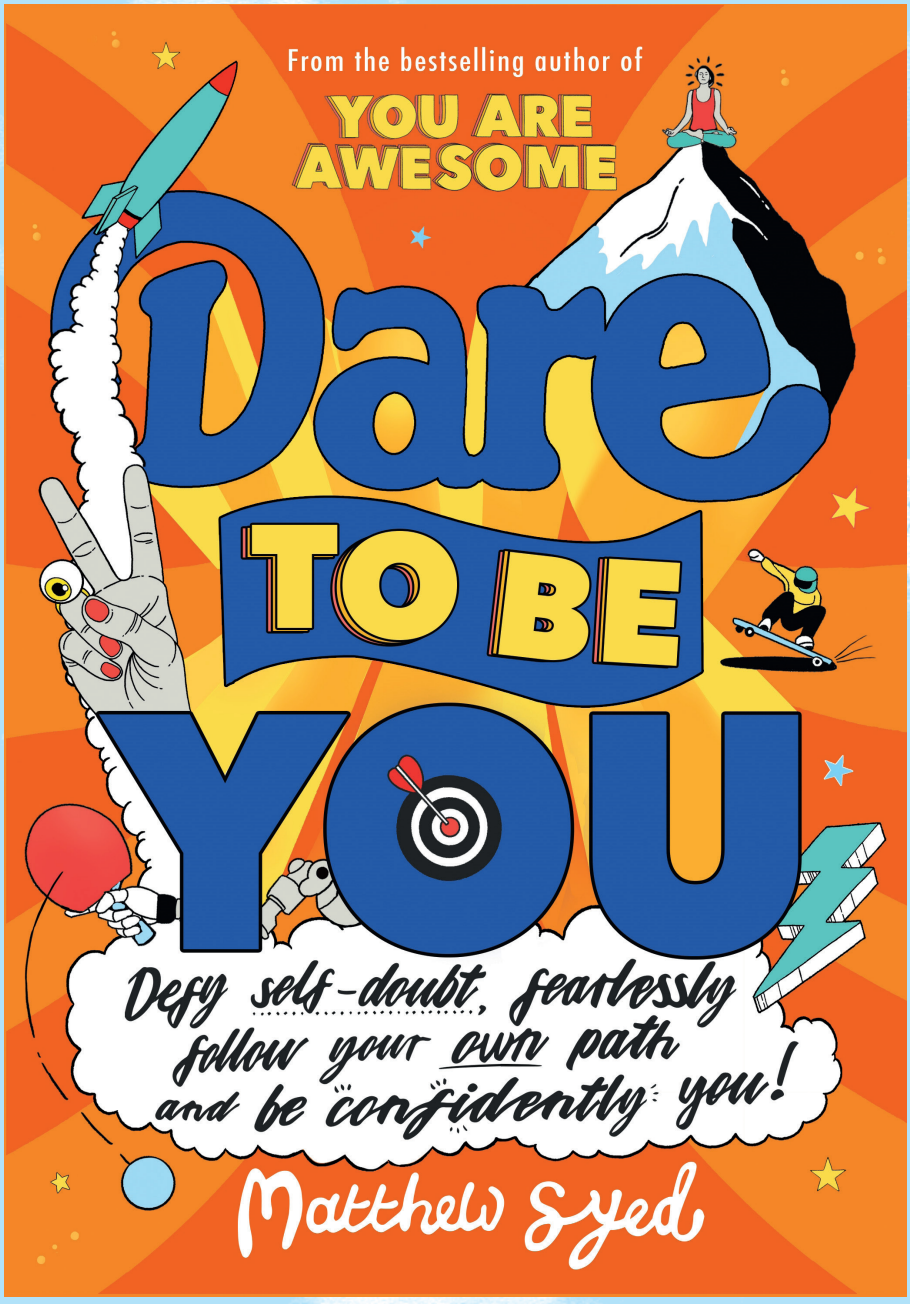
cup

ring

hat

snake

WHAT WOULD YOU DARE TO TRY IF YOU STOPPED WORRYING ABOUT FITTING IN?



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20 million-year-old winged ant trapped in amber resin by Dr. Yuan Ji

Jumping spider (Salticidae) by Andrei Nica

A Small World

Did you know that there is a beautiful and complex world that can only be seen through a microscope? The Nikon Small World Photomicrography Competition invites photographers and scientists to send in images of all things visible under a microscope. The competition has taken place for 46 years, and shares some of the best blends of art and science in microscopic images! Anyone who is interested in photography or video can enter. Here are some of our favourite photos of this incredible hidden world from the 2020 competition!

1st place Photograph, by Daniel Castranova, Dr. Brant Weinstein & Bakary Samasa, Section on Vertebrate Organogenesis

Tongue (radula) of a freshwater snail by Dr. Igor Siwanowicz

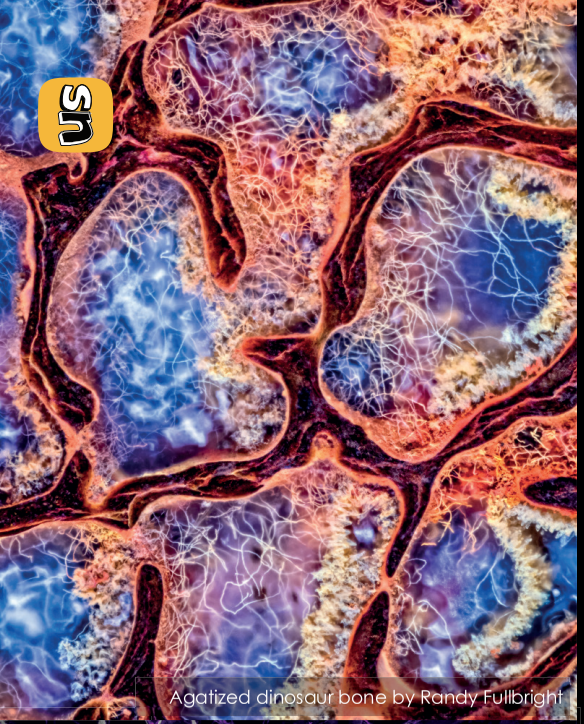
Daphnia sp. displaying seasonal changes in body shape with its elongated head and tail by Marek Miś

Red Panda

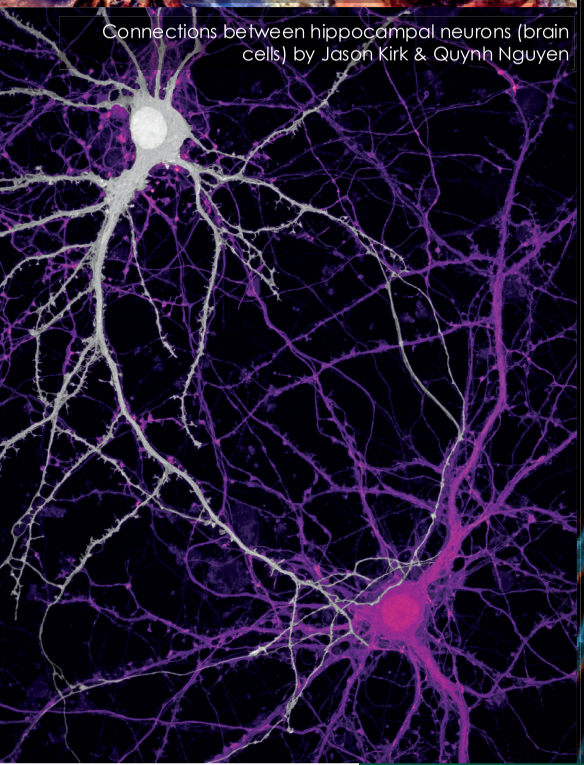
Photo by Mathias Appel

Is it a cat? Is it a bear? No, it's a red panda! These cute furry creatures are mostly found high up in the trees of the Eastern Himalayas. Living so high above the ground means that red pandas are very skillful and acrobatic. They use their long, bushy tails for balance and to cover themselves to stay warm in winter. It is very rare to see red pandas, since there are less than 10 000 of them in the world. Luckily, people like the Red Panda Network are trying to help! They hire forest guardians to keep watch over the red pandas in Nepal and replant bamboo for them to eat.

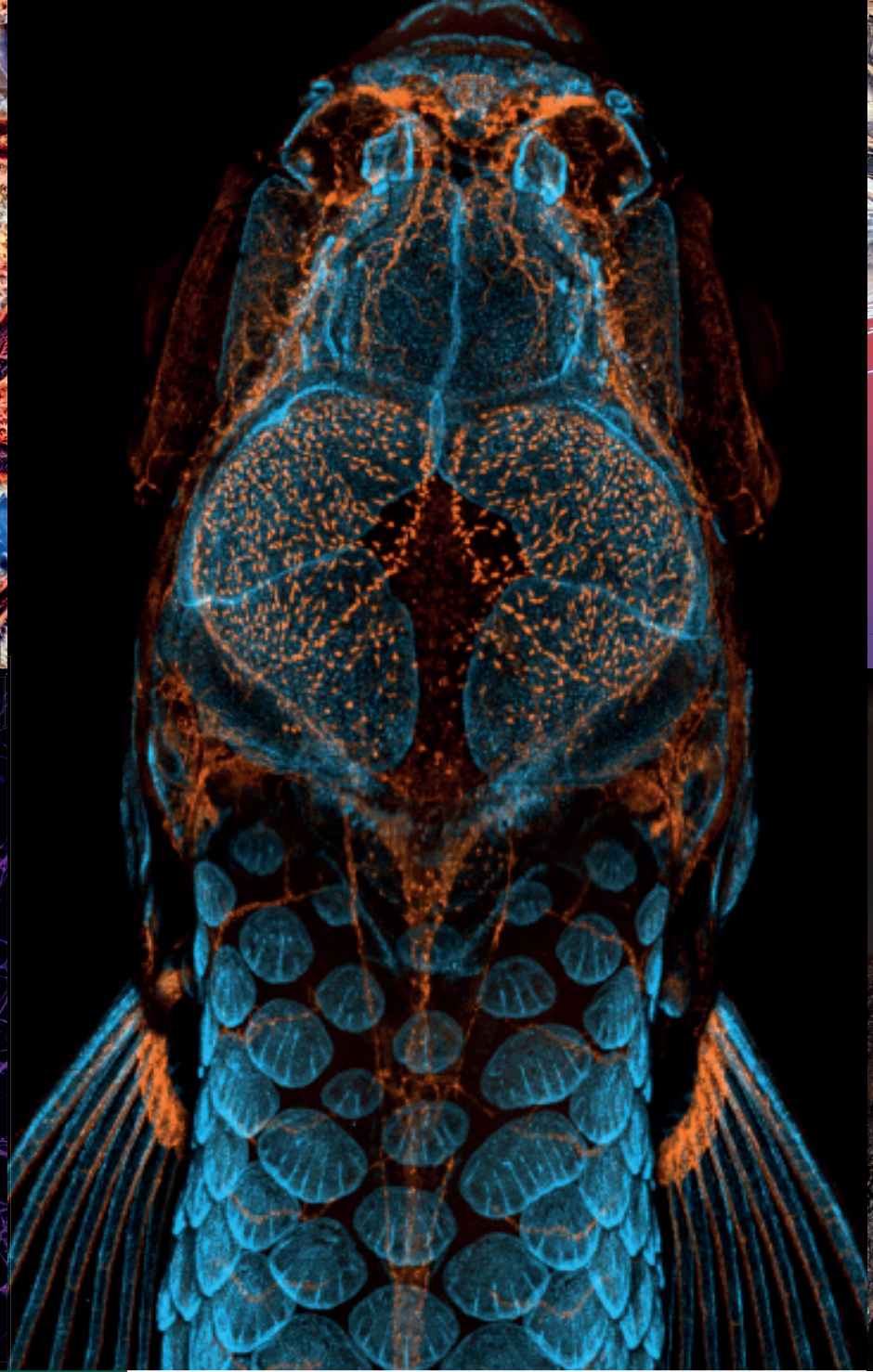

supernova



Agatized dinosaur bone by Randy Fullbright



Connections between hippocampal neurons (brain cells) by Jason Kirk & Quynh Nguyen



Bogong moth by Ahmad Fauzan

Slime mold by Sergii Dymchenko

New book for nature lovers by Dr Lynn Hurry

MEET ABYGALE

AND HER WILDLIFE FRIENDS

BESKIKBAAR IN AFRIKAANS!

Dr Lynn Hurry is an inspirational author dedicated to our urgent need to protect and enrich the wonderful wildlife of Africa.

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- **Fascinating facts about South African wildlife.**
- **Find out how animals help and rely on each other.**
- **Encourage readers to get involved with wildlife conservation.**

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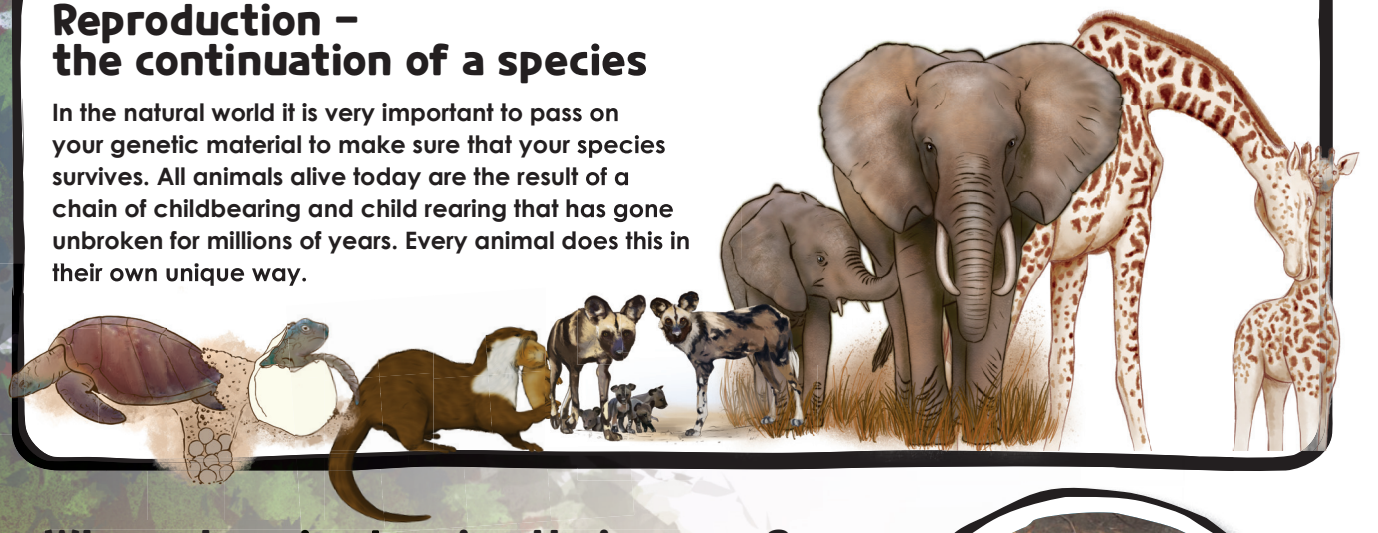
WILD Babies

Words by Nadja Botha
Illustrations by Benoit Knox and Vicki Venter

Reproduction – the continuation of a species

In the natural world it is very important to pass on your genetic material to make sure that your species survives. All animals alive today are the result of a chain of childbearing and child rearing that has gone unbroken for millions of years. Every animal does this in their own unique way.



Where do animals raise their young?

Many animals build their own homes so they can stay hidden away from potential predators. In this way, they can protect themselves and their babies.

Dens and burrows

Some animals live in dens and burrows while they raise their young. Dens are usually either buried deep underground or built by the animal to create a secret shelter. Some dens are temporary and others are more permanent – an animal can use it for its entire lifespan! Some animals create their own burrows like bears, rabbits and beavers, while others are opportunistic and borrow dens abandoned by others, such as hyenas and burrowing owls.

Caves

Lions, tigers, bears, wolves, and bats make their part-time homes in caves. Caves that make good homes are not just found on dry land. Many animals that live in the water, especially eels, like to live in underwater caves. You can even find some fish and sharks here!

Nests

Birds make nests to lay their eggs in and keep them warm. Nests can be built in the branches of a tree or on the ground, and some city birds build their nests in the nooks and crannies of buildings. Each bird builds its nest in different ways, in different places, and using different materials.

Out in the open

Many wild animal species like antelope, giraffes, zebras, and elephants live in herds on open plains. This means that their babies are raised in the open, which makes mom's job at protecting them much harder. Interestingly, many animals that can be eaten by a predator (prey animals) will give birth during the night, and if possible, when it is raining or storming.

Tree hollows and logs

Animals that live in forest areas often like to make their homes in hollow logs. You can find bobcats, otters and skunks here! The smaller forest animals prefer to live in empty holes in the trunks of trees, like squirrels, owls, and porcupines. Even black bears like living in tree hollows!

Get this!

Many wild baby animals are also precocial, which means they are born in an advanced state and can stand, walk around, and feed within minutes of being born. This gives them the best chance of surviving.

Babies of the African wild

A variety of adaptations

Animals have to adapt in order to stay alive and to be able to raise their young into adulthood. Animals like the pangolin have clever ways to make sure that their babies are safe and receive enough food to grow up strong and healthy. Let's dive into the world of baby animals and the ways that their parents raise them.

Hippo calf

Hippopotamus amphibious

- Gestation: 8 months
- Number of young: 1 – 2 (twins)
- Size at birth: 50 kg

After birth, mother and calf only go back to the herd after 10 – 14 days when the calf can recognise its mother. They ride on their mother's backs when they get tired, but when they want to drink milk they dive underwater. They can close their eyes and noses so that they can drink underwater. Hippos love water and spend up to 16 hours a day swimming and lying in the water. They can hold their breath for almost 5 minutes. Hippo calves need to be protected from crocodiles, lions and hyenas who will catch them if they get the opportunity.

Pangolin pup

Smutsia temminckii

- Gestation: 5 months
- Number of young: 1
- Size at birth: 15 cm

Pangolin pups are born with soft scales that take about 2 days to harden. They drink milk from their mother, and start eating insects when they're a month old. The pup rides on its mother's tail when she is foraging for insects. When a predator shows up, the mother will form a tight ball around the pup to protect it. When the pup grows up it can eat almost 70 million insects in a year!

Pangolins are one of the most trafficked animals in the word. They are poached and killed for their scales, which some people believe have medicinal value.

?! Get this!

A baby snake is called a snakelet.

Meerkat pup

Suricata suricatta

- Gestation: 11 weeks
- Number of young: 3 – 4
- Size at birth: about the size of a matchbox

Meerkats live in big groups or mobs, and only the alpha male and female will have pups. But the whole group will help look after the pups after they are born. Meerkat pups are born with their eyes and ears closed. Their eyes and ears will open when they are 10 – 14 days old. The pups are weaned when they are 6 weeks old and then they start looking for bugs, fruit and small reptiles to eat with the rest of the mob.

Zebra foal

Equus quagga

- Gestation: 13 months
- Number of young: 1
- Size at birth: 30 kg

A zebra foal can stand up within 10 – 20 minutes after it is born, and can walk and run within an hour. This allows the foal to run away from predators. The mother leaves the herd to give birth and only returns to them once the foal can recognise her through sight, sound and smell. The foal is born with stripes. Each zebra has a unique stripe pattern so that they can identify individuals in the herd.

Aardvark cub

Orycteropus afer

- Gestation: 7 months
- Number of young: 1
- Size at birth: 2 kg

Cubs are born with long donkey-like ears, a long snout, drooping eyelids and are entirely hairless! The cub drinks milk from its mother until it's weaned at 3 months. By this time, the cub can find and catch enough ants and termites to fill its belly. When the cub is 6 months old, it's ready to leave its mother's burrow and strike out on its own.

Crocodile hatchling

Crocodylus niloticus

- Incubation: between 55 – 100 days
- Number of eggs: 25 – 80 eggs
- Size of egg: 50 – 160 g

The mother will dig a hole to lay her eggs in and then she will stay close to the nest until the hatchlings hatch. The baby crocodiles will make a high-pitched sound to indicate that they are ready to hatch. She will then dig up the eggs and once the hatchlings are out, she will carry them to the water in her mouth. In the water, the hatchlings will stay close to their mother for protection. Almost 99% of the hatchlings will be eaten by other predators in the first year of their life.

Cheetah cub

Acinonyx jubatus

- Gestation: 92 – 95 days
- Number of young: 2 – 5
- Size at birth: 250 g

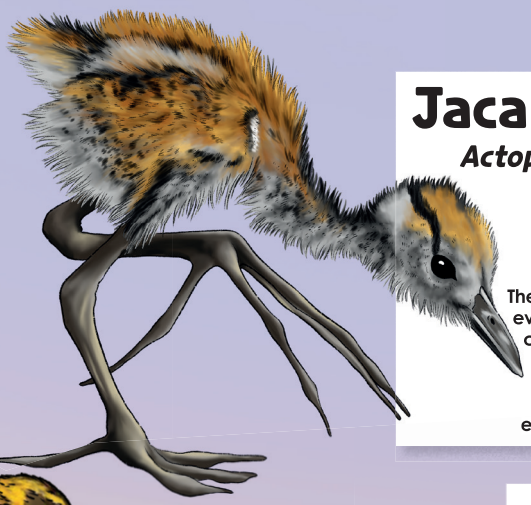
The pups are totally helpless and blind at birth. It takes about 10 days for their eyes to open and they start crawling around the den. Their teeth break through their gums when they are 3 weeks old. Cheetah cubs are born with a yellowish-grey coat of fur on their back called a mantle. The mantle makes the cub look like a fierce honey badger to scare off predators. Mothers and cubs are inseparable until the cubs are weaned at 18 months and the mother chases them away to start life on their own.

Elephant calf

Loxodonta africana

- Gestation: 22 months
- Number of young: 1
- Size at birth: 91 kg and 1 m tall

An elephant calf can't see very well at birth, so it knows its mother by touch, scent and sound. When it's small, an elephant calf doesn't know how to use its trunk. It will swing it around and play with it and even sometimes trip over it. The calf can drink about 11 litres of milk a day! The calf is very dependent on its mother and she has to do her best to keep it safe from predators and the mud next to drinking holes and rivers. If a calf gets stuck in the mud it can die if the mother and other members of the herd can't get it out.



Jacana chick

Actophilornis africanus

- Incubation: 25 days
- Number of eggs: 4 eggs
- Description of eggs: small brown eggs with black marks on them

The Jacanas make their nests near or on the water. Their nests can even float! The males will incubate the eggs and then care for the chicks when they hatch. If by any chance the eggs or the chick get wet, the male Jacana can pick them up with a special pouch underneath its wings! He can then carry them to a dry place. Predators like leguaans, snakes and otters will steal the eggs from the nest and eat them if the male isn't watching.

Verreaux's Eagle chick

Aquila verreauxii

- Incubation: 38 – 41 days
- Number of eggs: 1 – 2 eggs
- Size of eggs: large white eggs

They usually lay 2 eggs but will only raise one chick. They build their nests in cliffs and rock ledges where there is a lot of food. The Verreaux's Eagle loves eating rock hyraxes (dassies). The female will incubate the eggs while the male will bring her food. The 2 eggs will hatch about 4 days apart, so the older of the chicks will be bigger than the younger one. The bigger chick will then stomp and even push the other chick out of the nest.

Diederik's cuckoo chick

Chrysococcyx caprius

- Incubation: 11 – 12 days
- Number of eggs: 1 – 2 eggs
- Size of eggs: very small

The Diederik's cuckoo is a brood parasite. This means that they lay their eggs in other birds' nests for the host bird to incubate and raise. The male cuckoo will distract the host bird by sitting close to her nest and when she chases him away from the nest, the female will sneak in and lay her egg in the nest. When the chick hatches, it will kick out the other eggs or chicks so that it can get all of the food.

Plover chick

Vanellus coronatus

- Incubation: 30 days
- Number of eggs: 2 eggs
- Size of eggs: small eggs

The crowned plover can be found almost anywhere in South Africa where there is a big open field. You may have even seen some on your rugby field at school! They build their nests by making a small shallow hole in the ground and then line it with leaves and small pebbles. They will take turns to sit on the eggs. The chicks will stay in the nest until they are about 4 weeks old and then they can go off on their own.

Be kind to nature!

Baby animals have enough to worry about, just to survive to adulthood. Some of our actions as humans add another layer of danger and threat to their lives.

We need to do our best to stop pollution and the destruction of their habitats, so that we can keep seeing these cute baby animals in the wild.

MAKE YOUR OWN PIÑATA!

What you need:

- A large bowl
- Flour
- A balloon
- Water
- Newspaper
- Cardboard boxes (to make ears, snout, and tusks)
- Decorative paper
- Paintbrushes
- Paint
- Scissors
- Glue or tape
- Sweets
- String

1 Make a body for your animal using paper mâché. The body should be hollow, so you can fill it with sweets.

2 Fill your animal with sweets.

3 Create two ears, tusks and a nose from corrugated cardboard. Cover these with paper mâché too.

?! Pro Tip!

Make sure the paper mâché is completely dry before adding any decorations to it.

4 Use tape and glue to attach the ears, tusks and nose to the body of the animal. The nose should cover the opening in the body.

5 Paint your animal.

6 Add hair to your animal using coloured paper.

7 Tie a string to your piñata, so you can hang it up!

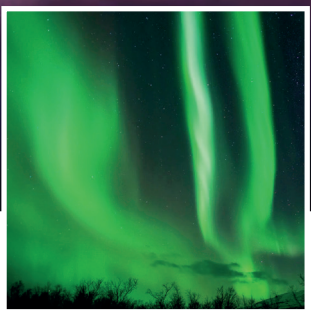
!! Warning!

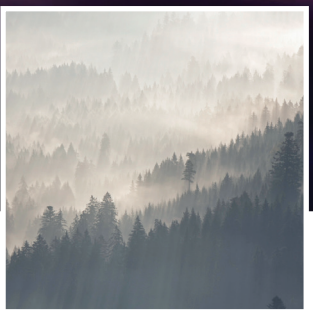
It's a very messy process, so wear old clothes and remember to clean up!

Video

Check out our video tutorial on SN ONline at supernovamagazine.co.za/sn-online

KINGDOMS OF FIRE ★ ICE & FAIRY TALES



Words by Benoit Knox
Photographs courtesy of Scott and de Bod Films


Susan Scott


Bonné de Bod

For the last few years, two outstanding South African filmmakers, Bonné de Bod and Susan Scott, have been amazing audiences around the world with their award-winning films. I interviewed Bonné and Susan in 2017, a few months before they released the film *STROOP*, a documentary which exposes the atrocities of the rhino poaching crisis. Their goal was clear: to uncover and show the truth to the world about how our natural environment and especially our rhinos are being stripped away from us and destroyed.

Since our first interview, *STROOP* has been shown at over 35 film festivals and won 30 international awards. While travelling around the world to represent the film and talk about the rhino poaching crisis, Bonné and Susan immersed themselves in the wilderness areas of the countries they visited and started filming again.

Their new film, *Kingdoms of Fire, Ice and Fairy Tales*, is an exploration and celebration of three incredible wilderness areas on our planet. It is a film that opens our eyes to the beauty and majesty of the natural world and feeds our souls with images of nature in all its glory.

Grand Prismatic Spring – the colours are a result of microbes living in the piping hot water.

FIRE

Yellowstone National Park

Wyoming, USA

The film starts in the oldest national park. An area which is so special and otherworldly that the US government protected it by law 148 years ago.

In Yellowstone, wolves, bears, elk, bison and many more species live in perfect balance in an amazing landscape, surrounded by mountains, trees and rivers of boiling water.

Native Americans call the area the 'Land of the Burning Ground'. Water bubbles and sprays out in piping hot fountains, called geysers, heated by the magma of the supervolcano below.

To Bonné this is an epic wilderness that rivals even the Kruger National Park, because it's a living landcape where you can witness the power of the Earth below your feet.


Wolf


Grizzly bear


Geyser


Bison

Aurora borealis – during the polar nights, the sky lights up with dancing colours when solar winds disturb the Earth's magnetosphere.

ICE

Abisko National Park

Lapland, Sweden

Bonné takes you through deep snow and intense cold to experience the polar night. For months, the sun doesn't rise and the landscape remains a cool blue during the four hours of daylight.

Amazingly, the arctic is filled with wildlife. At these freezing temperatures, life has had to adapt in a variety of ways. Every season, animals change their dense fur from brown to white to blend into the environment. To protect them from the cold, they have thick fur or feathers at the bottom of their feet.

The trees are also adapted to life in the cold. With their roots stuck in frozen soil, they can change their DNA through a process called cold hardening.

The landscape is stunningly beautiful, but the sky is even more spectacular. In the film, we get to see the incredible aurora borealis. Highly charged particles that explode off the sun's surface dance on the Earth's magnetic forcefield, lighting the sky with hundreds of colours.

While in Lapland, Bonné and Susan witness a very rare sight: polar stratospheric clouds. The multi-coloured clouds are incredibly beautiful, but they are made up of human chemicals which are eating away at our ozone layer.


Reindeer


Frozen lake


Polar stratospheric clouds


Arctic fox

Black Forest – The rays of the sun barely reach the ground under the trees. This darkness gives the forest its name.

FAIRYTALES

Black Forest

Germany

Humans have had a massive impact on nature, but in the Black Forest, Bonné shows us that it is possible for us to co-exist with nature. The forest was nearly wiped out by farming, housing and industry during the Industrial Revolution.

About 200 years ago, the Brothers Grimm collected fairy tales from people living in the Black Forest. Stories like *Rapunzel*, *Snow White* and *Cinderella* were inspired by the dark, mysterious and magical nature of the forest.

The folktales collected by the Brothers Grimm helped save the forest because people could see that the forests were a place to be treasured, not feared.

Today, misty hills and valleys are again covered in densly packed trees. Some of the trees are hundreds of years old and new research shows that the trees communicate with each other through their roots and networks of fungi. It has also been revealed that 'mother' trees protect and communicate with their children, and trees do indeed feel pain. Wild boar, deer, birds and many other creatures live among the trees and on the forest floor.


Wild boar


Bonné de Bod


Owl


Autumn colours

Bonné de Bod

Producer and presenter

The film *Kingdoms of Fire, Ice and Fairy Tales* left a great impression on me. I was also left with a lot of questions for the producers Bonné and Susan. I got to chat to them again shortly after the film was released.

When I first met Susan and Bonné, I had been following the sucess of their first film, *STROOP*, as it racked up awards all around the world. Even though the film was very well received, it was very challenging.

STROOP took a lot out of us, both emotionally and physically.We spent a lot of time at crime scenes and in court, seeing horrible pictures of rhinos with their horns hacked off. It had a huge impact on both of us and we had to feed our souls in nature again.

The duo were able to make the most of the attention that *STROOP* received. Organisers of different film festivals invited them to their countries to talk about *STROOP* and the rhino poaching crisis. While they were in the USA, they decided to take some time and visit a national park.

While we were there experiencing the park, we realised we want to take viewers with us on this journey. That's where the idea for *Kingdoms of Fire, Ice and Fairy Tales* was born.

We wanted to tell the story of these incredible places on our planet, give the viewers a bit of hope, reminding all of us that this season of the pandemic will end and that there is an incredible world waiting to be explored.

Traveling and filming in different countries is very expensive. So, when the opportunity came to visit the USA, Switzerland and Sweden for the festivals, they grabbed the chance to film in those countries.

The idea was that we would do a series of 13 episodes focusing on a National Park for each episode. Then of course the pandemic happened and we had already filmed at these three locations.

The two made it back to South Africa just as lockdown began. They had to change their plans and create a full-length film instead of a series.

We learned that when change is forced upon you, you need to work through it. You have to look at the opportunities that are within your reach, because sometimes it actually turns out to be better than you had ever imagined.

Read more!

*Read **Supernova** issue 6.4 to learn more about Bonné de Bod and her work against rhino poaching.*

Susan and Bonné have worked together as a team since before the film STROOP, when they worked for the nature show 50/50. Together, they are a multi-talented team, each with different strengths and qualities.

I think as individuals, we have our own strengths, but together we really bring different aspects that make our films do well.

Susan has this way of taking a vision that she has and making it come alive. It's really special and I'm privileged to be working with her. Also, the way that she just conceptualises an idea in writing is amazing, and to take the words that she writes and convey them to the viewer is really special for me.

Bonné is the talent. In filmmaking terms the talent is the person that stands in front of the camera. When we go out on location, Bonné has already done a lot of research and she knows her topic very well. When she's there, she has a drive to get the essence of the place through to the viewer. I don't have to do much as a director. I mean that's an incredible skill. She has an ability to look straight through the camera and absolutely connect with you at home.

Susan Scott

Producer and Director

Bonné and Susan are quite used to filming in the African bush and they've also filmed in some dangerous situations. For STROOP, they filmed undercover and came into contact with illegal wildlife smugglers, putting their lives on the line. But these three wilderness areas had challenges that they had not experienced before.

In Yellowstone, we could get out of our car and hike. But we could have come in contact with grizzly bears. We had to learn how to use bear spray. It was quite nerve-wracking.

The Black Forest was one of the most challenging places to film. How do you make trees come alive on camera? We worked with a talented drone operator to shoot the forest from different angles.

In the arctic circle, we had to deal with temperatures between -16° and -20°. We had only 4 hours a day of pale blue light in which to film all the landscapes. The cold also affected the camera batteries, and I needed to operate the cameras in the dark, with thick gloves. So I did a lot of research and preparation before the trip.

Even though it was cold and I was battling to breathe and the wind was getting through my clothes, we knew that we were in this special place and it was a real privilege to be there. We would not get a chance to go back, so we had to give it the best shot possible.

Kingdoms of Fire, Ice and Fairy Tales **is an important film that I think every *Supernova* fan should watch. Catch it on M-Net, Showmax and kykNET and follow Bonné on social media for awesome updates on their inspirational work.**

Read more online

There's a lot more to this story. Visit supernovamagazine.co.za/sn-online/ to read more about Bonné and Susan's story.

Words by Sawleha Vally
Layout by Cameron Howes

Cake through the ages

There are all sorts of weird and wonderful cakes that have come from different places, and while some have changed, some have remained and turned out to be firm favourites. From Angel's food cake to Devil's food cake, Eccles cake and Wedding cake, it's fascinating to see how the availability of ingredients affected the types of cakes that emerged. We can see how cake trends are still emerging and evolving through the ages.

17th Century

Wedding cake

The first wedding cakes are assumed to have originated from Ancient Greece. Early tradition involved breaking a cake made of wheat or barley over the bride's head. It was believed that this would bring good fortune to the couple. The wedding cake evolved from the 'bride's pie', which was a pastry stuffed with all manner of grotesque things, including a portion with live birds or a snake. (Does this remind you of the nursery rhyme 'Four and twenty blackbirds/baked in a pie' ?). The cake became popular only in the 19th century.

Coffee cake

Though it may seem like coffee cake is a cake with coffee flavouring, it actually refers to any type of cake that should be eaten with coffee. Coffee cake was previously more like sweet bread than cake. It is thought to have originated in Germany, and evolved from other types of cakes. April 7 is declared National Coffee Cake Day in the US.

18th Century

Angel's food cake

This airy cake is a type of sponge cake that is said to have a cloud-like texture. It contains lots of egg whites (usually a dozen) which are beaten to give the cake its airy texture and to make it rise. It's said to be 'healthy' because it does not have any butter or oil!

Chocolate cake

Before chocolate came to Europe, it was a precious substance and was only used in religious ceremonies. At the beginning of the 19th century, a chocolate cake was a yellow or spice cake meant to be had with a chocolate beverage, similar to coffee cake. A little later, a white or yellow cake with chocolate icing was popular. Midway through the 19th century, chocolate became an ingredient in baked goods such as cakes. 27 January is National Chocolate Cake Day in the US.

19th Century

Pound cake

This cake was (creatively) named after the amount of the ingredients that are used to make it. A pound of flour, butter, sugar and eggs are the main ingredients. The recipe for pound cake first appeared in English and American cookbooks. It was generally flavoured with a touch of lemon, and sometimes had currants in it.

Eccles cake

More a pastry than a cake, Eccles cakes were small, usually round, and filled with a mixture of ingredients in a puff pastry, then called a 'paste'. They are thought to have originated from a recipe for 'sweet patties' found in a recipe book from 1769. This recipe included ingredients such as the meat of a boiled calf's foot, large apples, and candied orange.

Devil's food cake

This cake is called the chocolate version of the Angel's food cake. It's a richer, darker version of a regular chocolate cake, and is made fluffier by using lots of baking soda (bicarbonate of soda). It is believed that the first recipe was printed in 1902. This indulgent, dense, chocolatey cake is usually iced generously with chocolate buttercream.

20th Century

Pineapple upside down cake

Although upside down cakes have been around since the Middle Ages in Europe, the origin of the pineapple upside down cake is a bit of a mystery. Recipes for this classic dessert have been found from the 1920s. Pineapple slices and cherries cover the base of this cake, and when flipped, become the top of the cake.

21st Century

Cake pops

These bite-size treats were only invented in 2008. Cake or cake crumbs are usually mixed with icing and formed into the shape of a ball, then placed on sticks and coated and decorated. They hold centre stage at themed parties, with designs varying from simple icing and sprinkle coatings, to unicorns and pineapple shapes.

Drip cake

A cake dripping with chocolate deserves such a name! Usually a tall, layered and iced cake, this cake has melted chocolate liberally poured on top, which descends down the sides of the cake to form a dripping pattern – much like a melting ice cream does.

What a cakewalk! Who would have thought that cakes would have such an interesting history? Who knows, perhaps you can create a new type of cake that will go down in history someday!

make a no-bake mug cake

Warning!

Remember to have adult supervision.

What you need:

- a large microwave-safe mug
- a medium-sized bowl
- a whisk

Ingredients:

- ¼ cup of cake flour
- ¼ teaspoon of baking powder
- 2 tablespoons of cocoa powder
- 2 tablespoons of sugar
- ⅛ teaspoon of salt
- ¼ cup + 1 tablespoon of milk
- 2 tablespoons of oil
- Chocolate chips (optional)

What better way to spoil your mom and dad (or yourself) than with this easy and delicious microwave mug cake?

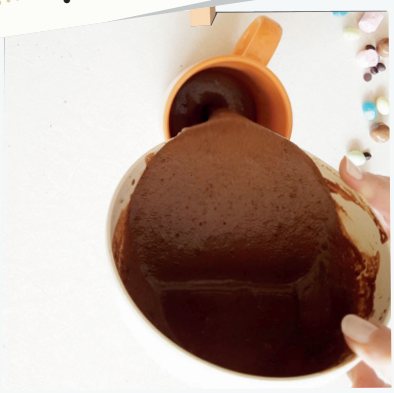
1

In the bowl, whisk together the flour, baking powder, cocoa powder, sugar and salt.

2

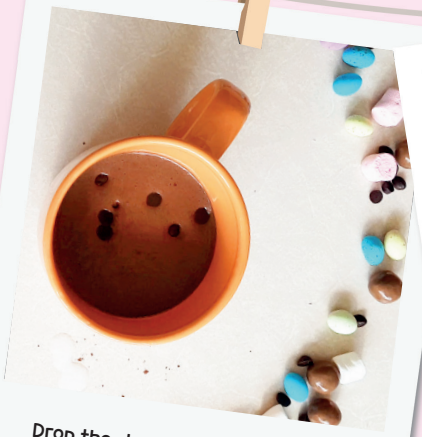
Add in the milk and oil and whisk again until the batter is smooth.

3



Pour the batter into the mug. Remember to leave enough space for the cake to rise.

4



Drop the chocolate chips on top.

5

Put your mug cake in the microwave to cook.

Pro Tip!

To cook your mug cake, you need to know the power of your microwave. If the power is 950 watts, microwave the batter for 70 seconds on full power. If the power is lower, you can microwave the batter for 90 seconds or more.

Video

Check out our video tutorial on SN ONline at supernovamagazine.co.za/sn-online

BECOME AN EXPERT DOG TRAINER

Words by Candice Robertson

Training is an important part of any dog's life. It helps your pup to understand proper behaviour, socialize with other animals and people, and teaches them how to behave well in public. Reward-based training is also super fun for dogs (since we all love being rewarded with tasty treats) and helps you to establish a strong bond with your best bud!

Sit

This is one of the easiest obedience commands to teach your dog, so it's a good one to start with.

1. Hold a treat close to your dog's nose.
2. Move your hand up so their head follows the treat. This should cause their butt to lower.
3. Once they are in a sitting position, say "sit". Give them a treat and reward them with affection.

Stay

Before attempting this one, make sure your dog is an expert at the "sit" command.

1. Ask your dog to "sit".
2. Open the palm of your hand in front of you and say "stay".
3. Take a few steps back. Reward them with a treat and affection if they stay.
4. Gradually increase the number of steps you take before giving the treat.
5. Always reward your pup for staying put — even if it's just for a few seconds.

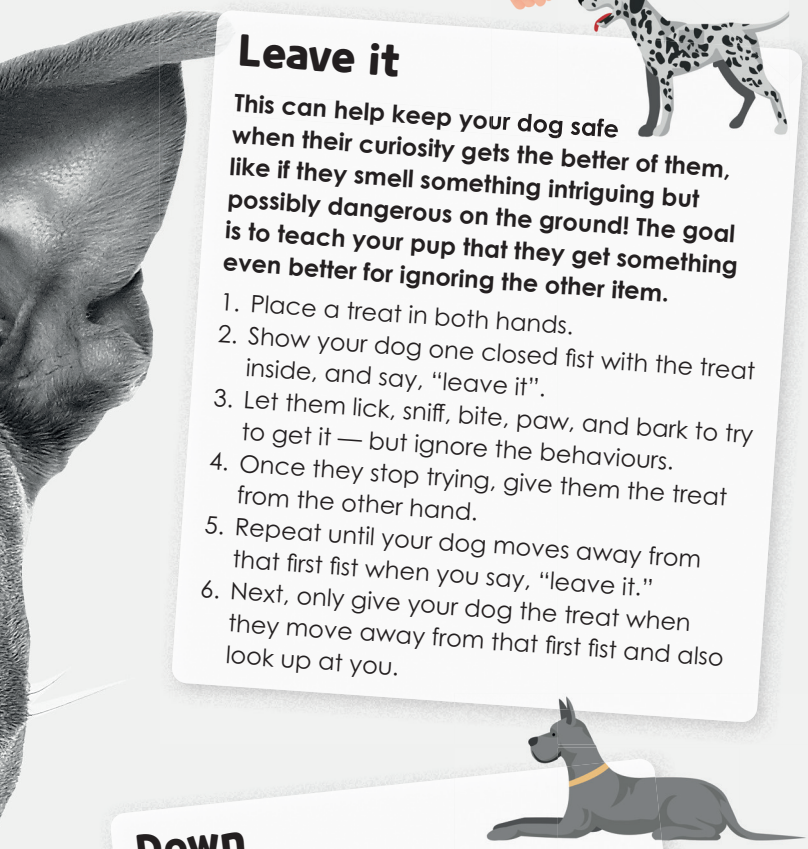
Come

This command can help keep your dog out of trouble, and bring them back to you if you lose grip on the leash or accidentally leave the front door open.

1. Put a leash and collar on your dog.
2. Go down to their level and say "come," while gently pulling on the leash.
3. When they get to you, reward them with affection and a treat.

Get This!

Dogs can learn more than 1 000 words.



Leave it

This can help keep your dog safe when their curiosity gets the better of them, like if they smell something intriguing but possibly dangerous on the ground! The goal is to teach your pup that they get something even better for ignoring the other item.

1. Place a treat in both hands.
2. Show your dog one closed fist with the treat inside, and say, "leave it".
3. Let them lick, sniff, bite, paw, and bark to try to get it — but ignore the behaviours.
4. Once they stop trying, give them the treat from the other hand.
5. Repeat until your dog moves away from that first fist when you say, "leave it."
6. Next, only give your dog the treat when they move away from that first fist and also look up at you.

Down

This can be one of the more difficult commands for your pup to master since the position is submissive. Try to keep the training positive and relaxed, especially if your dog is anxious or fearful.

1. Find a treat that smells good, and hold it in your closed fist.
2. Hold your hand up to your dog's snout. When they sniff it, move your hand to the floor so they follow.
3. Slide your hand along the ground in front of them and encourage their body to follow their head.
4. Once they are in the down position, say "down". Then, give them a treat and lots of affection!

Get This!

A well-trained dog is a happier dog because they need fewer restrictions!

Perfect Your Pooch

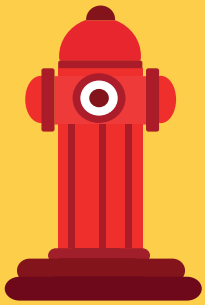
Leash Training

An easy way to help your dog learn to walk without pulling on the leash is to stop moving forward when they pull and to reward them with treats when they walk by your side. If your dog is not very interested in food treats, then you can give them a toy or a ball instead of a treat.

Different activities are also easier with different kinds of leashes – whether it's hiking, going to dog training class, or walking through your neighbourhood. No matter what kind of leash you choose, it should be well-made with a secure clasp and comfortable for you to use.

Potty & House Training

It's not too difficult to correctly potty train your pup. However, keep in mind the process can take anything up to one year! Make sure to take your dog outside frequently – especially when they wake up, and after eating and drinking. Pick a bathroom spot outside, and always take your dog to that spot. Remember to praise your dog or give them treats when they've finished!



Stopping Unnecessary Barking

No one should expect a dog to never bark. That's as unreasonable as expecting a human to never talk! But some dogs bark excessively, which can cause problems at home. The first step is to figure out what is making your dog bark. Dogs bark for many reasons, including loneliness, fear, when saying hello, being protective, seeking attention, and even while playing. Getting your dog to bark less will take time, work, patience, and consistency.

Pro Tip

Shouting stimulates your dog to bark more because they think you're joining in. So always speak calmly and firmly, but don't shout.

CURIOUS QUEST

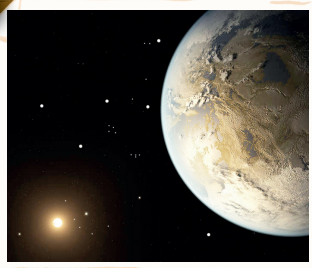
A closer look

Our fearless explorer is treking through the jungle on a mysterious quest. Now she doesn't know which way to go. But someone has left her some clues.

Look carefully at the images and page back into the magazine to find them. If the image is exactly the same, then go left, if it is different, go right.
Circle the correct option.

GO LEFT GO RIGHT

1



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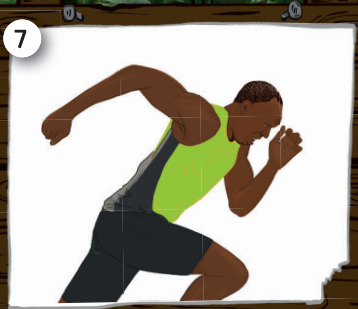


GO LEFT GO RIGHT

8

GO LEFT GO RIGHT

9

GO LEFT GO RIGHT

Answers on page 3

Mysterious Maze

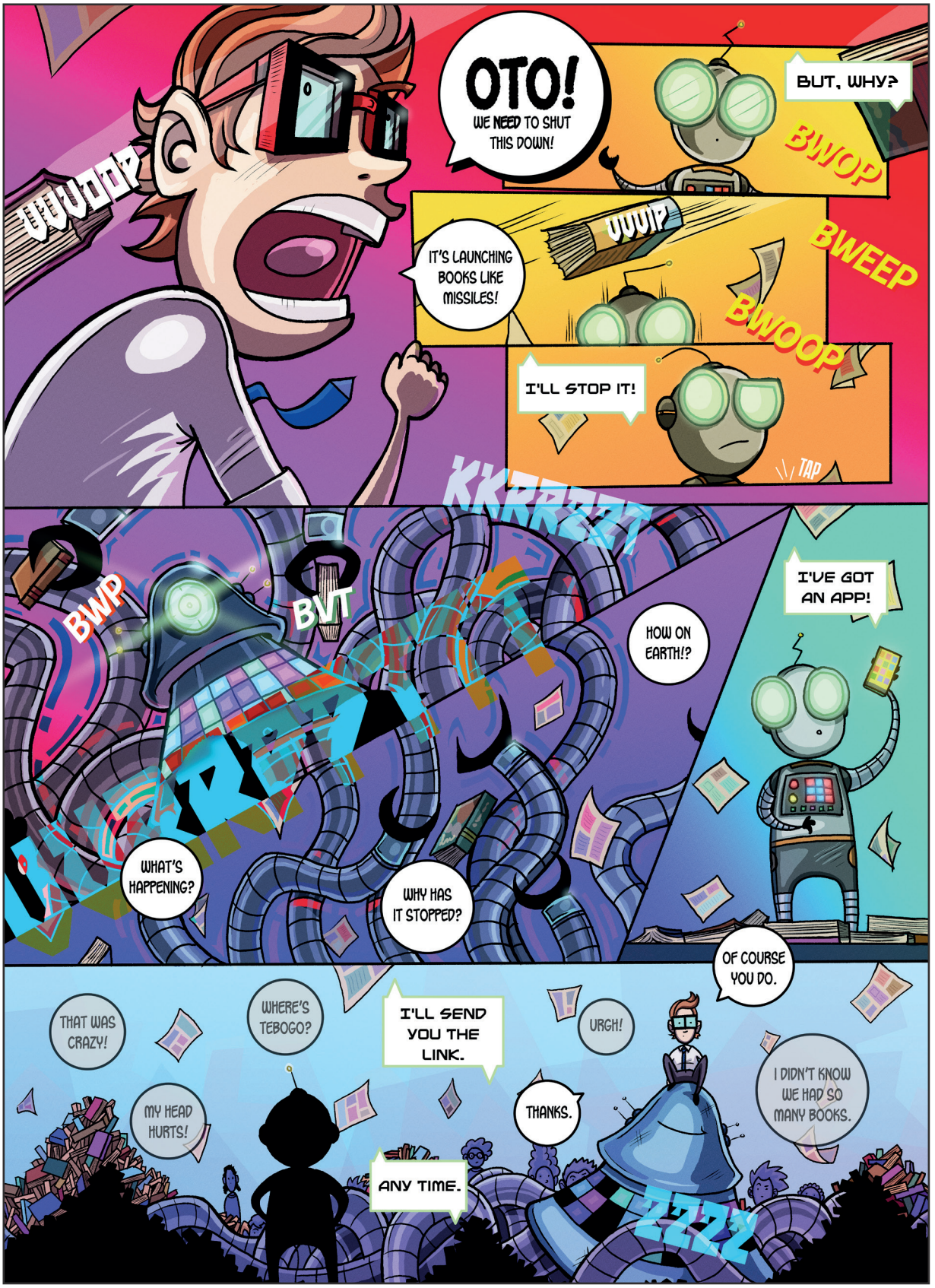
Help has arrived, but it's on the other side of the jungle! Guide our explorer along the right path to the helicopter.

Solution on page 3

Story and artwork
Rhys ap Gwyn

CHECK OUT VOL 9.3 FOR PART 1 OF BOOKTOPUS!

The back-story: Rob Ottoman is a natural genius, but he's embarrassingly shy. Rob created Oto to help him break out of his shell. While transferring his brain-power to his robot, all of Rob's hidden potential was released. So, Oto is Rob on steroids. Rob could have all of Oto's power if he'd just get over his shyness.



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