

SCIENCE | ENGINEERING | SPACE | ANIMALS

VERY Interesting Junior

MAY 2021

ISSUE #31

growing young minds, testing your knowledge

TOP 5 HEAVIEST THEROPOD DINOSAURS



WHAT WOULD
HAPPEN...
If **aliens**
contacted us?



WIN x5
MINECRAFT ANNUALS



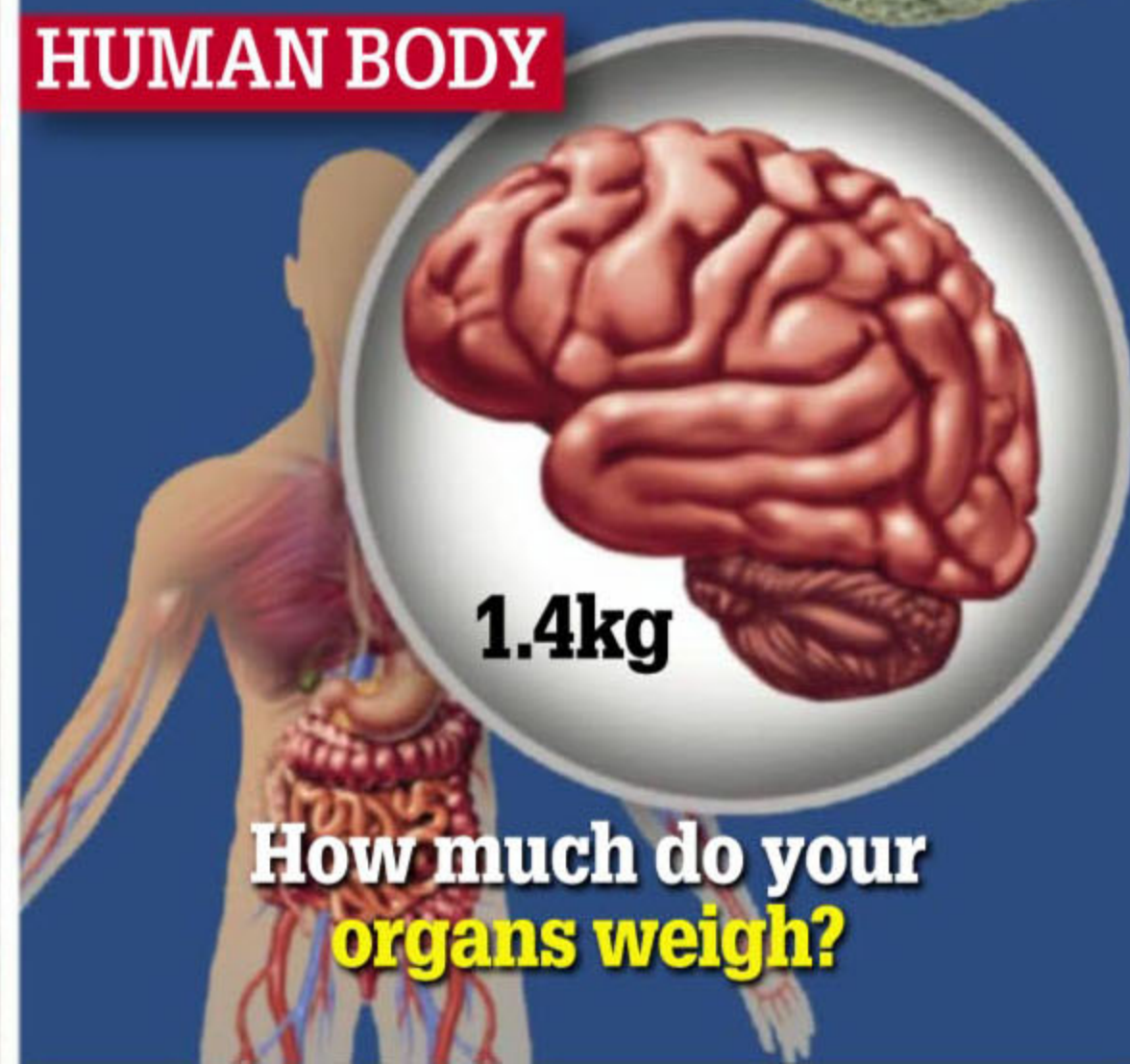
5 FUN FACTS ABOUT
MINECRAFT

BURNING QUESTIONS ANSWERED

- How do dogs keep our airports safe?
- When does a hill become a mountain?
- Can I get my vitamin C from fruit pastilles?
- Where is the world's biggest pineapple building?



HUMAN BODY



1.4kg

How much do your
organs weigh?

AMELIA EARHART



**FAMOUS
FEMALE FLIER**

WEATHER
Sand storms,
cool clouds and
**white
rainbows**

VOL 04 ISSUE 31 2021 MAY Price **R38.90** | €4.00 | £3.00
SADC countries: R33.83 (Excl. TAX)





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DISTRIBUTION On The Dot

ISSN 9112-0003

PRINTER

Printed by **WOLFE** 011 468 2090, a division of **WOLFE** Holdings



OCT-Dec 2020
20 979

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panorama
media CORP

PUBLISHED BY Panorama Media Corp (Pty) Ltd.
Private Bag X4, Kyalami, 1684, South Africa.
92 Campolino Road, Kyalami.
Tel: 011 468 2090 Fax: 011 468 2091/2
www.panorama.co.za

THIS ISSUE'S HIGHLIGHTS ON ONE PAGE



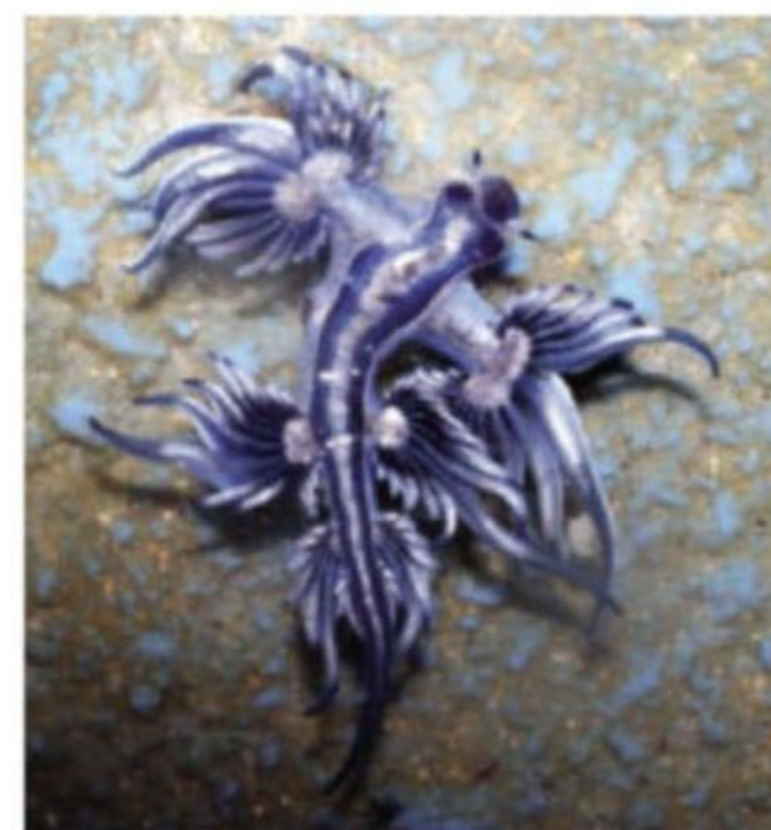
MAGNIFICENT MOUNTAINS

There's more to them than meets the eye p.8



LOCAL IS LEKKER

Did you know we are home to the world's biggest pineapple building? p.30



SLOW, STEADY AND DEADLY?

The blue dragon sea slug is only 3cm long but bites chunks out of his prey p.36

WEATHER WONDERS

Cloud formations, ball lightning and white rainbows? p.32



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These rules apply to all competitions and giveaways in VI Junior.

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Plus

- What did dinosaurs evolve from?
- How long did it take to develop *Minecraft*?
- How heavy is your brain?
- What happened to the Apollo 13 moon mission?
- How do TV stations know what people watch?
- Why do we sweat when we are anxious?

This issue has highs and lows – literally. We look at mountains: how they are formed, what the difference is between a mountain and a hill, and how you can complete the 7 Summits Challenge. Then, we go down to the depths of the ocean to find out how deep-sea fish absorb light, what the world's biggest (underwater) mountain range is, and how human noise is affecting sea life.

We also look to the skies and find out more about famous aviator Amelia Earhart, learn about some cool weather formations, discover how methane is affecting our atmosphere, and (even further up) see how some clever people have created a complete map of the moon's surface. We also have a bit of fun finding out what would happen if aliens contacted us, and explore some cool facts about our fave game – *Minecraft*. You can also win one of five *Minecraft* 2021 annuals, so be sure to enter!

Then, we move on to weight and size – the biggest airports in the world, the heaviest (and lightest) theropod dinosaurs, and the heaviest organs in the human body. After that, we look at solvents – and bring you a fun and colourful experiment you can try at home.

Finally, we discover some amazing animals – from dogs who keep wildlife off airport runways to tiny sea slugs who are surprisingly scary (for their prey, at least). We hope there is something for everyone in this issue. If you have any questions or comments, please send them to me at vjunior@panorama.co.za. I'd love to hear from you!

Until next time,

Keep learning

Deanne

1. KING FAHD INTERNATIONAL AIRPORT

(DAMMAM, SAUDI ARABIA): 776km²



DID YOU KNOW?

This airport is so huge that it covers more area than its neighbouring country, Bahrain.

2. DENVER INTERNATIONAL AIRPORT

(Denver, USA): 135.71km²



50%
of the top 10 biggest airports are in the United States.

3. DALLAS/FORT WORTH INTERNATIONAL AIRPORT

(between Dallas and Fort Worth, USA): 69.63km²



4. ORLANDO INTERNATIONAL AIRPORT

(Orlando, USA): 53.83km²

TOP

BIGGEST AIRPORTS

Check out the insane sizes of these international airports

7. GEORGE BUSH INTERCONTINENTAL AIRPORT

(Texas, USA): 44.51km²



5. WASHINGTON DULLES INTERNATIONAL AIRPORT

(Washington, USA): 48.56km²



Top 10

6. BEIJING DAXING INTERNATIONAL AIRPORT

(Beijing, China): 47km²



Beijing Daxing Airport is nicknamed the 'Starfish' for its unique design.

1969

The year George Bush Intercontinental Airport was opened. It was known as Houston Intercontinental Airport until it was renamed, after George HW Bush, in 1997.



8. SHANGHAI PUDONG INTERNATIONAL AIRPORT

(Shanghai, China): 39.88km²



9. CAIRO INTERNATIONAL AIRPORT

(Cairo, Egypt): 36.25km²

15 million

The number of passengers who travelled through Cairo International Airport in 2017.

10. SUVARNABHUMI AIRPORT

(Bangkok, Thailand): 32.4km²

Random facts for fun!

HOW DO TV STATIONS KNOW WHAT PEOPLE WATCH?

You've probably heard in the news that *South Africa's Got Talent* had 100,000 people watch the show on a particular evening (this is a random example, as we have no clue how many really watched!), and we've always wondered how on earth they know this. Turns out, we have a whole research council that looks into viewership. They use something called people meter technology, which is a unit linked to televisions in participating households. Each family member is assigned a different button on a remote control unit, and identify themselves using this button when they are watching. This helps the Broadcast Research Council (BRC) to learn about the age and gender of viewers.



DOWN TO THE DEPTHS

OceanGate is offering people the chance to explore the RMS Titanic – which sank in 1912. Lying 3,800m below the surface of the ocean, the wreck has microorganisms munching away at her steel structure, and no one is sure how much longer she will be recognisable. No manned expeditions have been down to visit the wreck in 15 years, but the OceanGate crew visited in 2019, and found that the Titanic is degrading rapidly, and that there won't be many more opportunities for people to see her with their own eyes.

This year, they have 18 dives planned in their 'Titanic Survey Expedition', which hopes to create a 3D model of the wreck using the latest technology. Nine 'citizen explorers' will join. These regular people will support the expedition crew – helping with navigation, maintenance and cataloguing of finds. They will stay aboard a ship and will visit the wreck in OceanGate's Titan submersible. Sounds exciting – if you have R1.9 million to pay for your ticket.



11

The number of courses the first-class passengers had for their evening meal on the night the RMS Titanic sank.

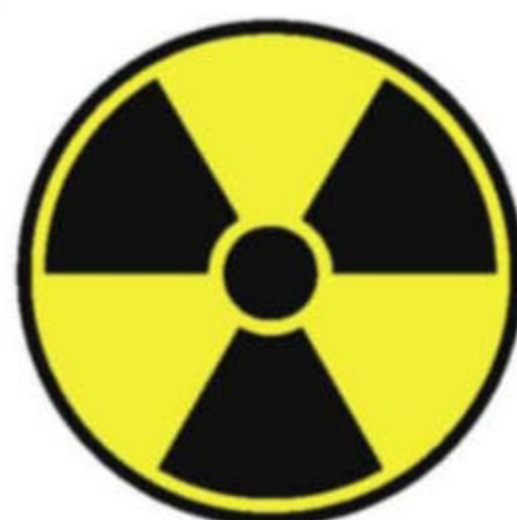


WHY DO FOOTBALL PLAYERS SPIT SO MUCH?

It's really gross to watch, but several studies have shown that exercise increases the amount of protein secreted into the saliva, especially a kind of mucus that makes saliva thicker and more difficult to swallow. That's why players have to spit it out. It isn't clear why we produce more of this mucus when exercising, but it may be because we breathe through our mouths more, so the mucus stops the mouth from drying out. Some sports, such as basketball and tennis, penalise players for spitting, but soccer and rugby don't, so players are free to spit.

12,000km

The distance some painted lady butterflies migrate annually – that's a lot further than the 4,800km the monarch butterfly travels.



DID YOU KNOW?

Marie Curie spent so much time studying radioactivity that her research papers are still radioactive – and she died in 1934!



100kg

The mass of the UK-built RemoveDEBRIS satellite. It's the largest satellite ever launched from the International Space Station (ISS) and will trial methods of removing space junk.



WHY DO SOME PEOPLE GET FRECKLES?

When your skin is exposed to UV radiation in sunlight, specialised cells called melanocytes produce the dark pigment known as melanin, which serves to protect the skin. Usually, this melanin is produced evenly and results in a tan, but some gene variants (such as the MC1R gene that results in red hair) cause the melanocytes to overproduce melanin granules. This creates little pigment clusters (freckles) that get darker in sunlight.

5

COOL FACTS ABOUT MINECRAFT

The game that has taken the world by storm for the past decade, is still a winner



In 2014, Persson sold *Minecraft* to Microsoft for US\$2.5 billion.

1

THE FIRST VERSION WAS MADE QUICKLY

In six days, to be exact. Programmer and designer Markus Persson (AKA 'Notch') wanted to create a virtual world in which one could freely explore. He started fiddling around on 10 May 2009 and, by 16 May, he released an 'alpha version'. It didn't look the way we know it today. Persson kept tweaking it, until it was a complete game in 2011.



4

THERE ARE PLENTY OF TRICKS OUT THERE TO LEARN

The more you play, the more you will come across different solutions to problems you encounter. Look at the Endermen and you'll be attacked. But look at them while wearing a pumpkin helmet, and voila! They pose no harm. Want to break blocks while mining but your tools keep breaking? Use a torch – if a gravel block falls on one, it breaks the block into bits and you can collect them...



We are lucky Persson didn't go with his first name for *Minecraft*. We just can't see us telling our friends we're off to play 'RubyDung', can we?

2

CREEPERS WERE A MISTAKE

Persson was trying to make a pig, but he mistakenly switched the desired height with the length, and that's how we got the predator we know (and love?).



5

IT'S A BEST-SELLER

Within a month of launching its beta phase in 2011, *Minecraft* had over a million purchases. By April 2011, it had made US\$23 million. For its 11th anniversary in 2019, the company announced it had reached over 200 million copies sold, and that more than 126 million people were playing it monthly.

3

IT IS INFINITE... TO A DEGREE

'Infinite' maps don't end, but they don't technically carry on forever, either. Persson explained in 2011 that there will be more and more bugs the further you go – and the game will start acting strangely, and finally end in a coding meltdown. That same year, a gamer tested the limits by travelling an extreme distance into the 'far lands'. It wasn't all just for fun – he used the opportunity to raise money for a children's charity. You can no longer travel to the 'far lands', though – that was removed in an update soon after his quest.



DID YOU KNOW?

Minecraft is the best-selling video game of all time.



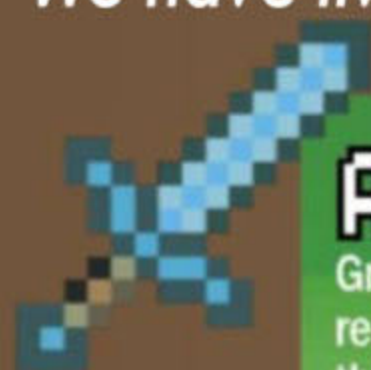


WIN



AWESOME BOOKS

We have five copies of the Minecraft Annual 2021 up for grabs! Enter now to win



ABOUT THE BOOK

Grab your pickaxes (and pens) and get ready to challenge your building brain in this awesome 100% unofficial adventure-packed book for Minecrafters everywhere. Discover build tips and secrets, challenges to compete with friends, awesome art and maximum pixel puzzle fun!



HOW TO ENTER

Send an email with the words 'VI Junior Minecraft' in the subject line to vjunior@panorama.co.za. Please include your name, a daytime contact number and a daytime delivery address. Entries close 31 May 2021.

DID YOU KNOW?

Minecraft celebrates its 12th birthday on 17 May! Congrats!



DID YOU KNOW?

A Minecraft movie is on the (distant) horizon. Warner Brothers had announced a release date for March 2022, but due to the COVID-19 pandemic, it is likely to move out.

WHEN DOES A HILL BECOME A MOUNTAIN?

You'd think there would be a straightforward answer to this, but there isn't. You can look at a big hill, or a small mountain, and be quite unable to tell the difference. Here's what we do know... Hills are generally smaller, but there is no universal height that differentiates them. Many use a marker

of around 1,000ft (304m), while some use 2,000ft (609m). Hills are also generally more rounded at the top, and have a gentler slope. They are considered easier to climb than a mountain, which often has steep cliff faces or rocky terraces, and you can see the top (peak) of a hill easily.



MAJESTIC MOUNTAINS

HOW ARE MOUNTAINS FORMED?

Mountains (and hills, for that matter) are formed naturally over long periods of time. Beneath the Earth's surface are tectonic plates, which are sort of like giant puzzle pieces. These pieces move ever so slowly, but ever so powerfully. When they bump into each other, they don't just stop – they force the surface of the ground upwards. It takes many millions of years for this to form a big mountain. You'd think that, as they don't really stop 'growing', mountains would get taller and taller and just keep going, but here's a thought – every year, climate change forces sea

levels to rise, and rain and wind erode the mountains. As the height of mountains is taken from sea level, are mountains really growing in height at all? Ocean scientists say the sea level may be rising by as much as 4.8mm per year, while Mount Everest is estimated to be growing at 4mm annually. One other factor to consider is gravity. Mountains like Everest cannot get much taller, because their weight starts to fight against the forces pushing them upwards. If this happens, the growth would start moving outwards instead of upwards.



**DID YOU
KNOW?**

The United Arab Emirates (UAE) are reportedly looking at building a mountain. Why? The UAE is a very dry region, and mountains create rain by forcing air to rise, thereby creating clouds.

30

The number of the world's tallest mountains that are in the Himalayas.



**DID YOU
KNOW?**

Aside from mountains and hills, you also get mounds. These are smaller and man-made. People made mounds throughout history for many reasons (like burials or to observe distant things better).

5

The number of dams on Table Mountain.



**DID YOU
KNOW?**

Mount Olympus is a mythical mountain that was won by the Greek Olympian gods after a battle with the Titans. There is a Mount Olympus in real life, too - it's the highest mountain in Greece.



MOUNTAINS

Some cool facts about mountains for you to share with your friends



**DID YOU
KNOW?**

Mars only has about one-third of the gravity that Earth has. That is why the mountains on the Martian surface grow so tall. The tallest peak on Mars is Olympus Mons, at 25,000m tall (three times the height of Mount Everest).



FAMOUS MOUNTAINS



DID YOU KNOW?

A glacier is a layer of dense ice that is slowly moving due to its own weight.

DENALI

CLAIM TO FAME: The highest mountain peak in North America

HEIGHT: 6,190m

WHERE? Denali National Park, Alaska

FUN FACTS:

- Denali means 'high' or 'tall' in the local Koyukon language, and the Koyukon people have been calling the peak that for centuries. But, between 1917 and 2015, the official name for the mountain was Mount McKinley. It was then officially renamed by the Barack

Obama administration, so that it reflected its roots better.

- The temperatures at Denali's glacier-covered peak can reach a frozen -83°C .
- Barbara Washburn became the first female to summit Denali in 1947. In 1995, 12-year-old Merrick Johnston became the youngest female to successfully climb the mountain. In 2001, Galen Johnston (not related to Merrick) became the youngest person ever to do so, at 11 years old.



ACONCAGUA

CLAIM TO FAME: Highest mountain in the Americas

HEIGHT: 6,961m

WHERE? Andes Mountain Range, Argentina

FUN FACTS:

- Karl Egloff broke a record in 2014, by climbing and then descending Aconcagua in just 11 hours and 52 minutes!

- It's deadly! Around three people die on the mountain every year, bringing the total to more than 100 deaths since they started keeping record. As a result, the peak is sometimes referred to as the 'Mountain of Death'. Eek!
- In 1985, hikers found a well-preserved mummy 5,300m up!

Don't miss our next issue, where we look at some of the world's most famous explorers!



THE SEVEN SUMMITS

Many climbers dream of successfully tackling the highest mountains on each continent, known as the seven summits:

- Everest
- Aconcagua
- Denali
- Kilimanjaro
- Vinson
- Mount Elbrus
- Puncak Jaya (AKA Carstensz Pyramid)

NOTE: The original seven summits included Kosciuszko instead of Puncak Jaya.

The list was introduced by mountaineer Richard Bass, who was the first to complete the mission in 1985. If you complete the seven summits and go on to reach both the North and South Poles, you have achieved what is known as the Explorers Grand Slam. Five South Africans have done this.

SEVEN SUMMITS



DID YOU KNOW?

Mt Everest is the tallest mountain in the world, when measured using height above sea level. But Mauna Kea in Hawaii, when measured from the ocean floor, is **MUCH** taller – 10,204m to be exact! But, because only 4,207m of that is above sea level, most of it doesn't count.



PUNCAK JAYA

CLAIM TO FAME: The highest island peak in the world

HEIGHT: 4,884m

WHERE? Indonesia, Oceania

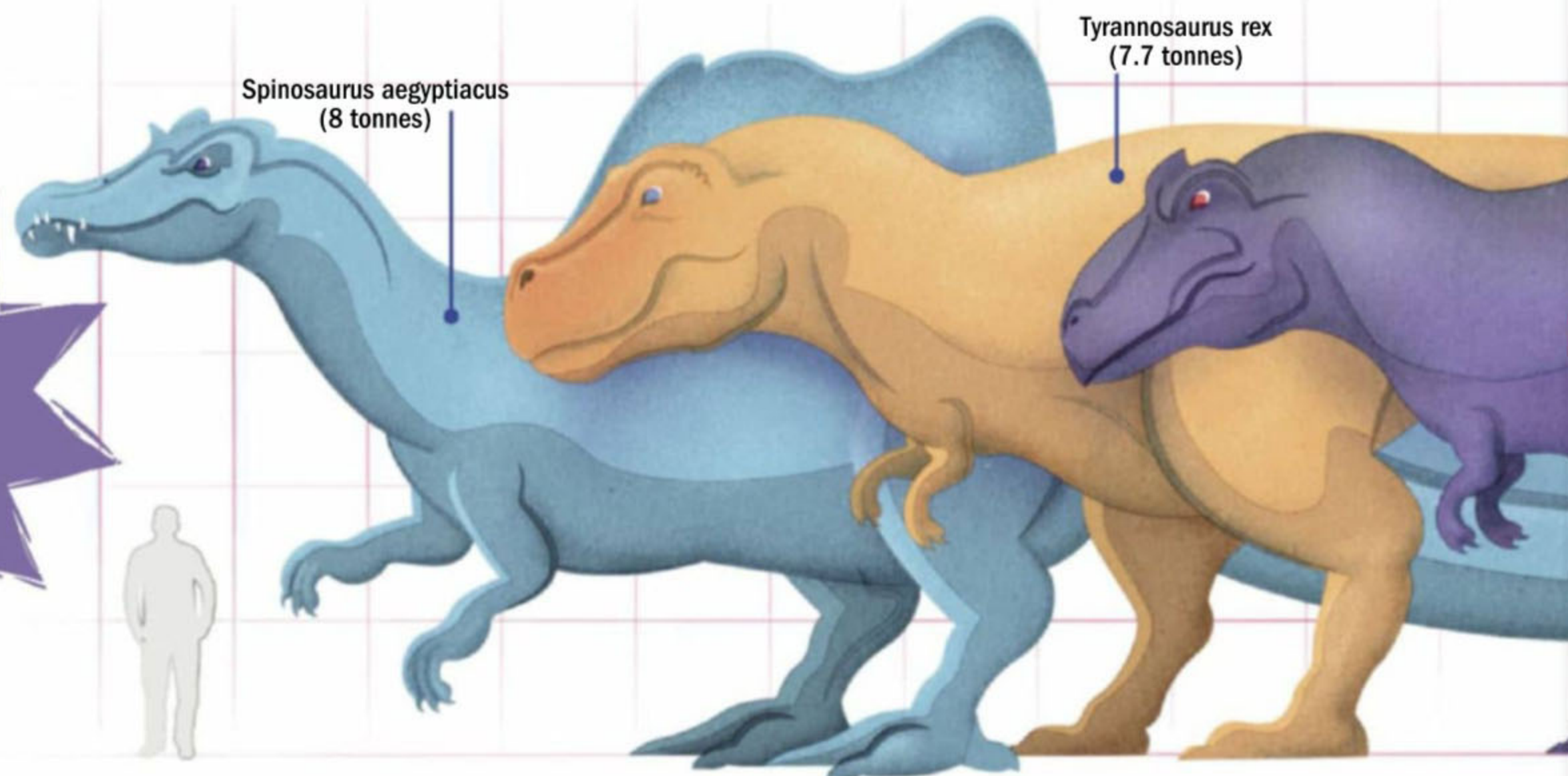
FUN FACTS:

- The mountain's name literally translates as 'glorious peak' in Indonesian.
- The glaciers at the peak of the mountain are disappearing,

losing 7m in thickness every year. It is estimated that there will be none left by the end of the decade.

- When Jan Carstensz spotted the mountain in 1623 while sailing, no other Europeans believed him, because he told them there was snow on top, and the surrounding environment was so warm.

The theropods were a diverse group of dinosaurs. They walked on two legs, were mostly meat-eaters, and all modern birds are descended from them.



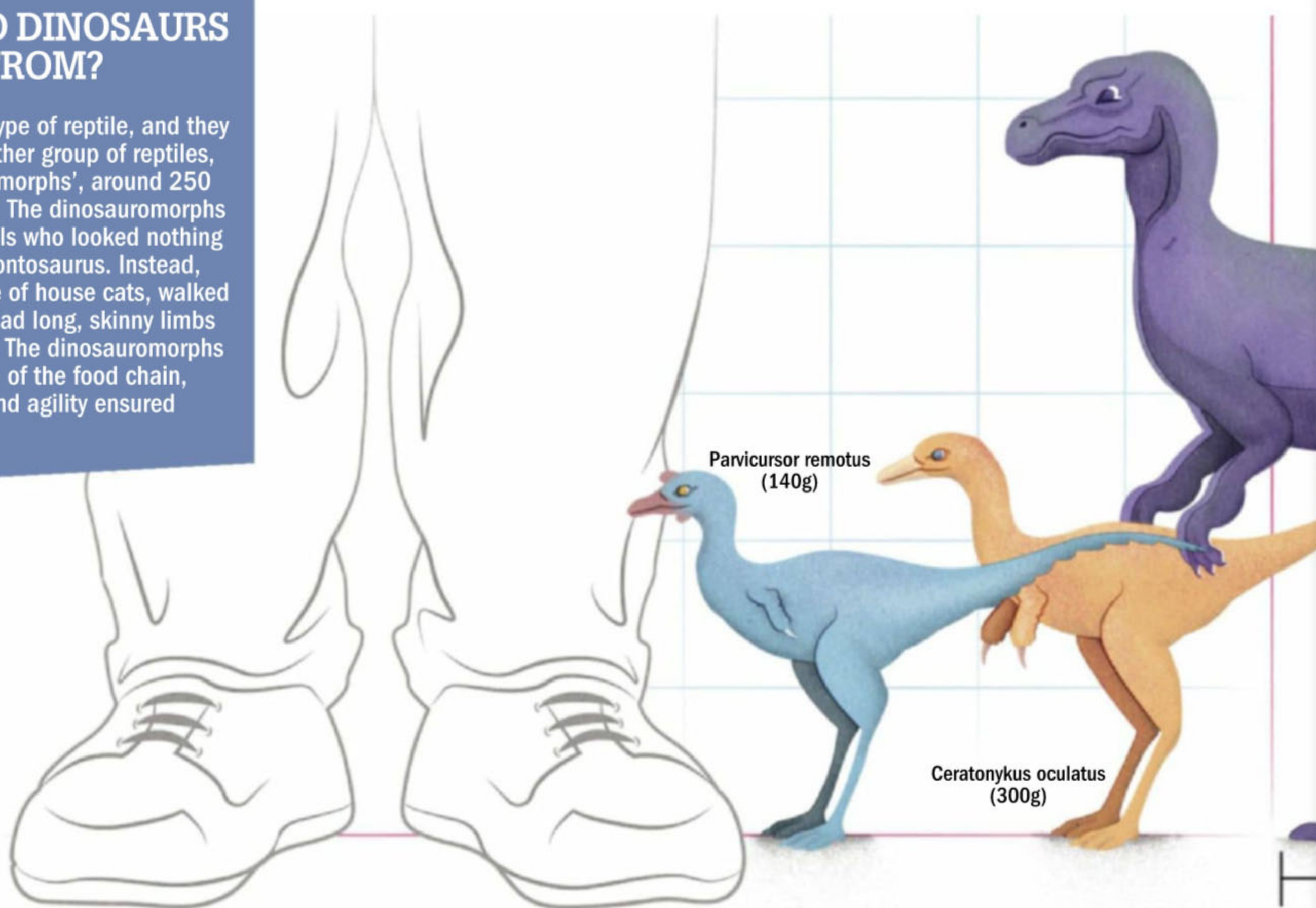
ALL THEROPODS GREAT AND SMALL

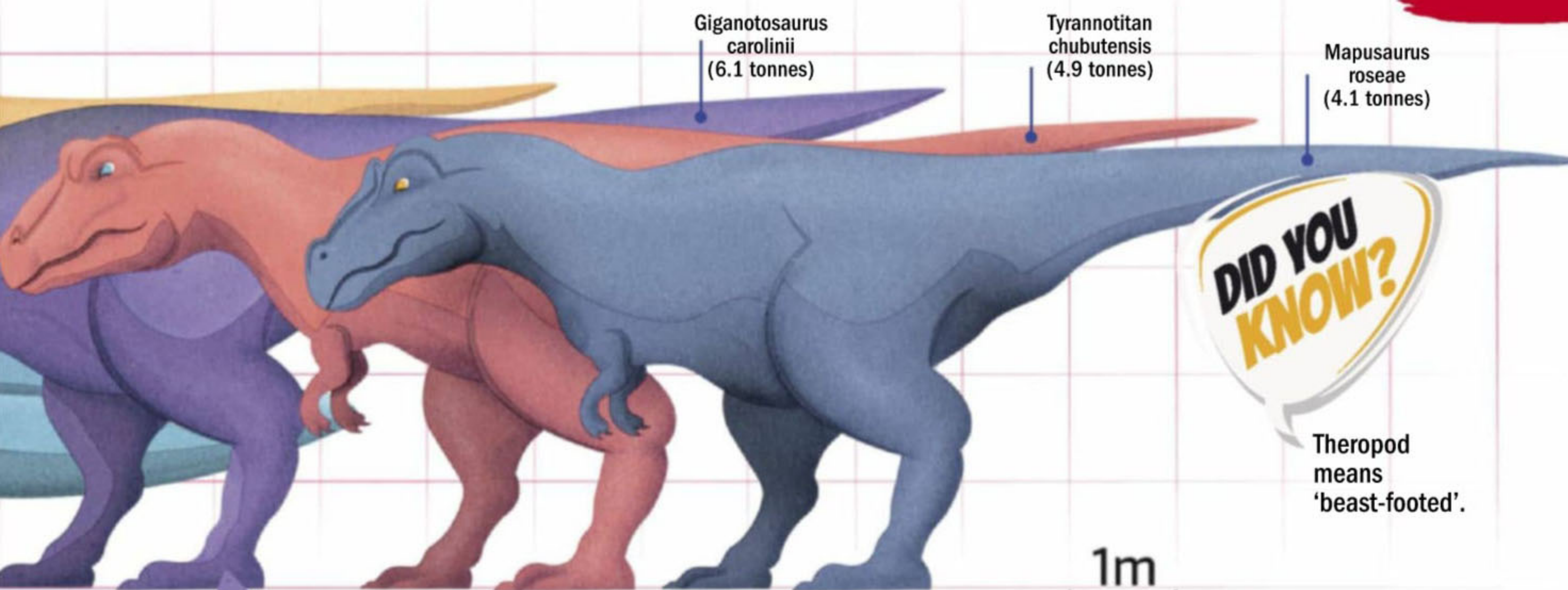
Which were the heaviest, and lightest, theropod dinosaurs?

WHAT DID DINOSAURS EVOLVE FROM?

Mikayla (8)

Dinosaurs are a type of reptile, and they evolved from another group of reptiles, called 'dinosauromorphs', around 250 million years ago. The dinosauromorphs were small animals who looked nothing like a T. rex or Brontosaurus. Instead, they were the size of house cats, walked on all fours and had long, skinny limbs like a Greyhound. The dinosauromorphs weren't at the top of the food chain, but their speed and agility ensured their success.





WHO WAS GIGANOTOSAURUS?

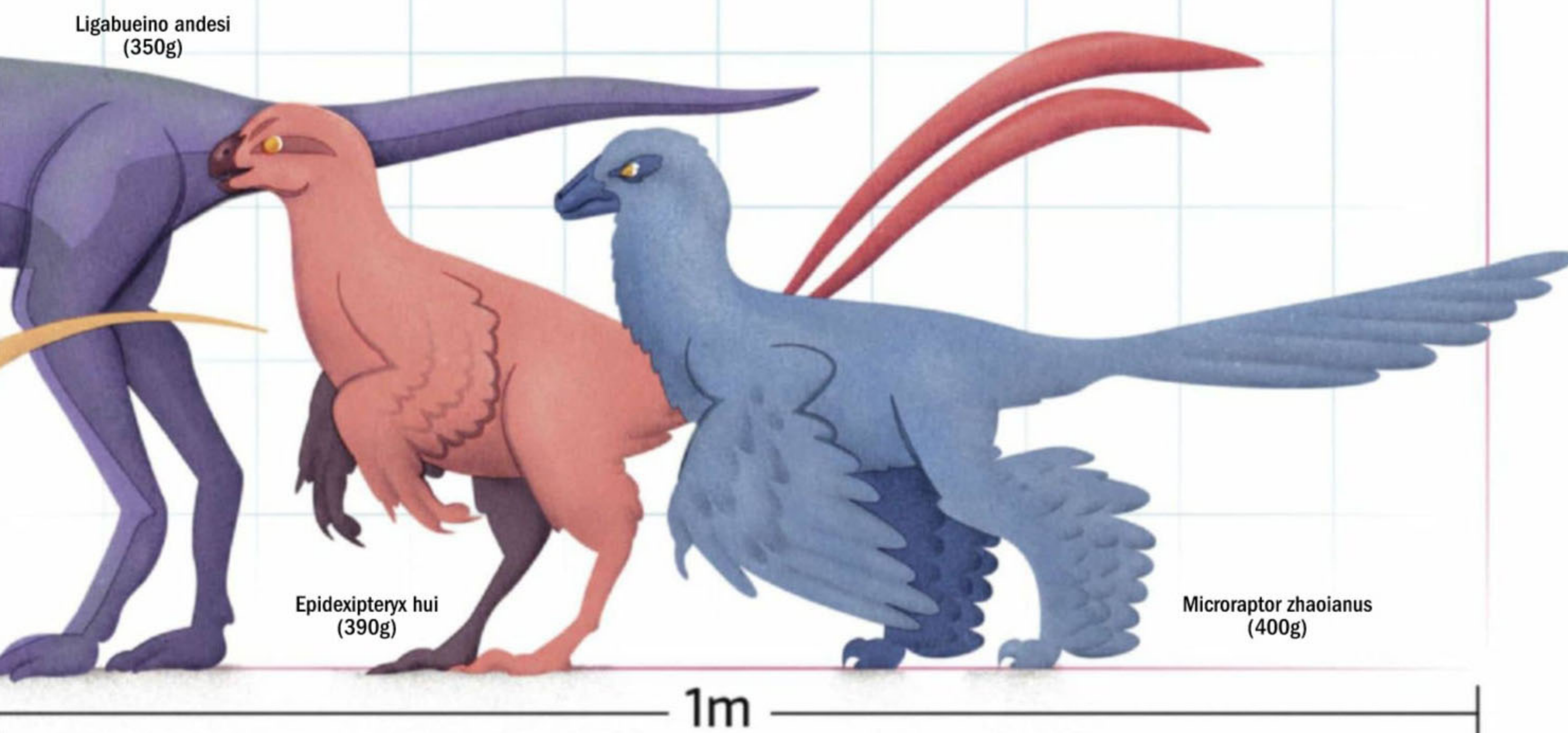
A massive theropod who lived in what is now Argentina 97-98 million years ago. The first fossil of this species was discovered pretty recently – in 1993 – in a rock formation in Patagonia. It sparked a lot of interest as it rivals T. rex in size.

WHY AREN'T PTEROSAURS CLASSED AS DINOSAURS?

Pterosaurs (prehistoric winged reptiles) and dinosaurs (also reptiles) share a common reptilian ancestor who lived some 240 million years ago. But the two groups followed different evolutionary paths. Dinosaurs have distinctive features of the skeleton, including a window-like opening in the pelvis where the thigh bone connects. Pterosaurs don't have this joint, and they have their own unique features, such as extra-long fourth fingers that support their wings. Pterosaurs are no more dinosaurs than we are chimpanzees.

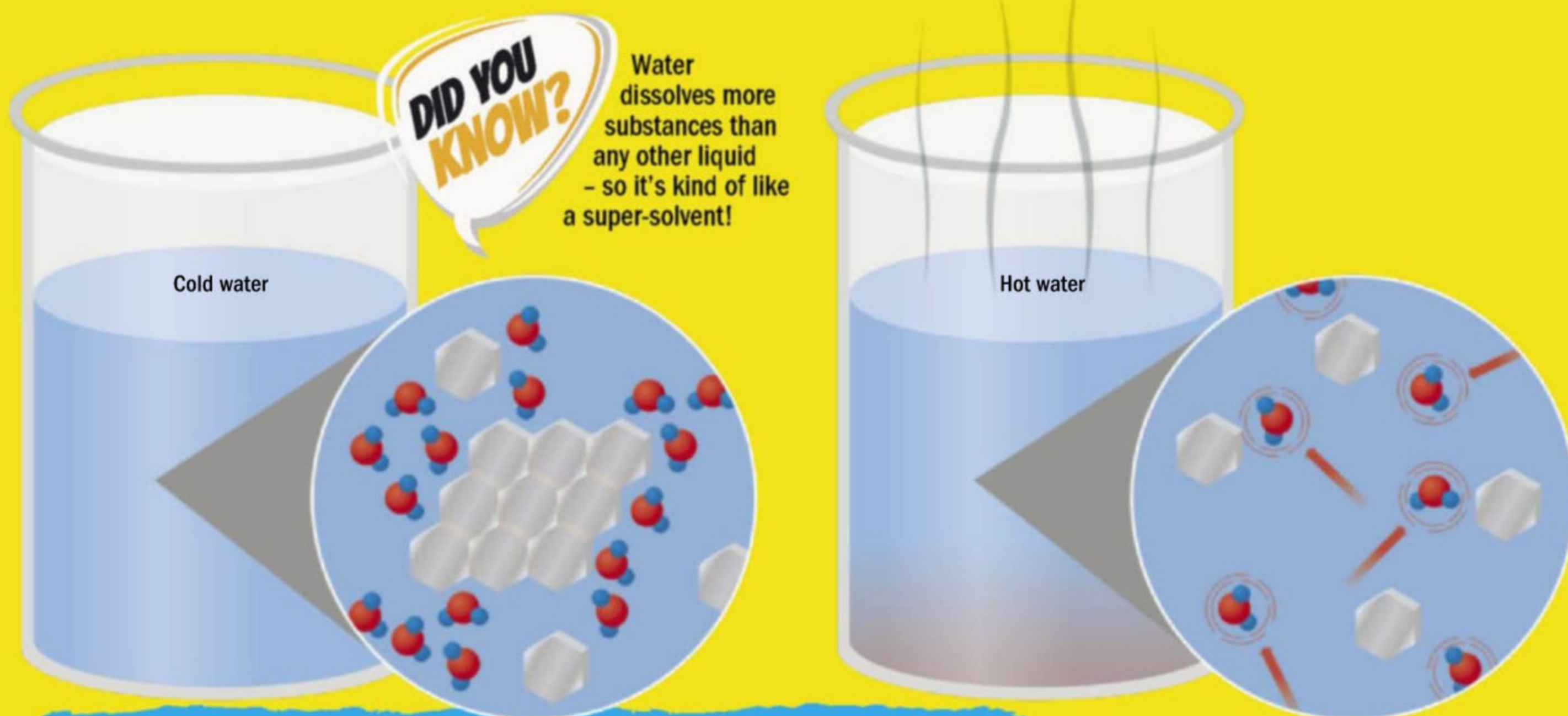
DID YOU KNOW?

Until recently, no Spinosaurus fossils have included a full tail. But, in Morocco, palaeontologist Nizar Ibrahim and his colleagues unearthed a complete tail and were surprised to find that it has a paddle-type appendage at the end. This indicates that Spinosaurus may have been suited to an aquatic life, and goes against everything we thought we knew about the species.



WHY IS **HOT** WATER A BETTER SOLVENT THAN **COLD** WATER?

Learn a science concept and see it in action!



A solvent is a substance that can dissolve other substances. Water is a good solvent. Dissolving a solid requires energy input to disrupt the forces holding the molecules together, both in the solid and in the water. Most solids, including sugar and salt, become more soluble with increasing temperature. This is because heat increases how much the molecules

move, causing more collisions between the water molecules and the solid. But the opposite is true for gases, which tend to become less soluble as a solvent's temperature increases. As the gas molecules become more active, they break free from the liquid, which explains why drinks soon lose their carbon dioxide fizz on a hot day.

DID YOU KNOW?

The material you are trying to dissolve in the solvent is called a solute, and if the solvent and the solute mix together successfully – you have a solution.



HAVE FUN WITH IT!

Water can dissolve the coloured sugar off of M&Ms or Smarties. And it's quite fun to watch! Simply arrange the sweets in a pattern around the edge of a plate and fill the plate with water. The colourful sugar runs inwards to the centre of the plate, making a beautiful pattern!

Why not try this experiment twice? Once with cold water and once with warm water. Which went quicker?

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AIRPORT DOGS

Did you know that some dogs have the important job of chasing wildlife away at airports?

This article first appeared in *Animaltalk* magazine, written by Mientje Kleinhans.

Dogs have always been trained to do jobs – so, it's no surprise that, when OR Tambo International Airport had trouble with wildlife on the runways, dogs were tasked with making sure everyone was safe. These well-trained canines patrol

the runways and the grasslands next to them with their handlers in all-terrain-vehicles (ATVs) and, when a bird is sighted, they are given a certain whistle command. Then off they go, chasing the bird away.



The Bird Strike Avoidance Project at OR Tambo International Airport.

WHY IS THERE A PROBLEM?

Birds can cause huge damage to aeroplanes, and can lose their lives in the process. This could be very expensive – replacing the engine on a Boeing 747-800 can cost upwards of US\$12 million! And it can be dangerous for the passengers on board.

You may have heard about the emergency landing on the Hudson River in the US? The pilot, Captain Chesley 'Sully' Sullenberger, had to make an emergency landing into the river three minutes after takeoff, when a flock of Canada geese flew into his aeroplane's engine.

It was only thanks to the pilot's skill and experience that everyone on board survived. So, to avoid damage and danger, the airport dogs are used to 'train' birds and other wildlife to stay away from planes.

DID YOU KNOW?

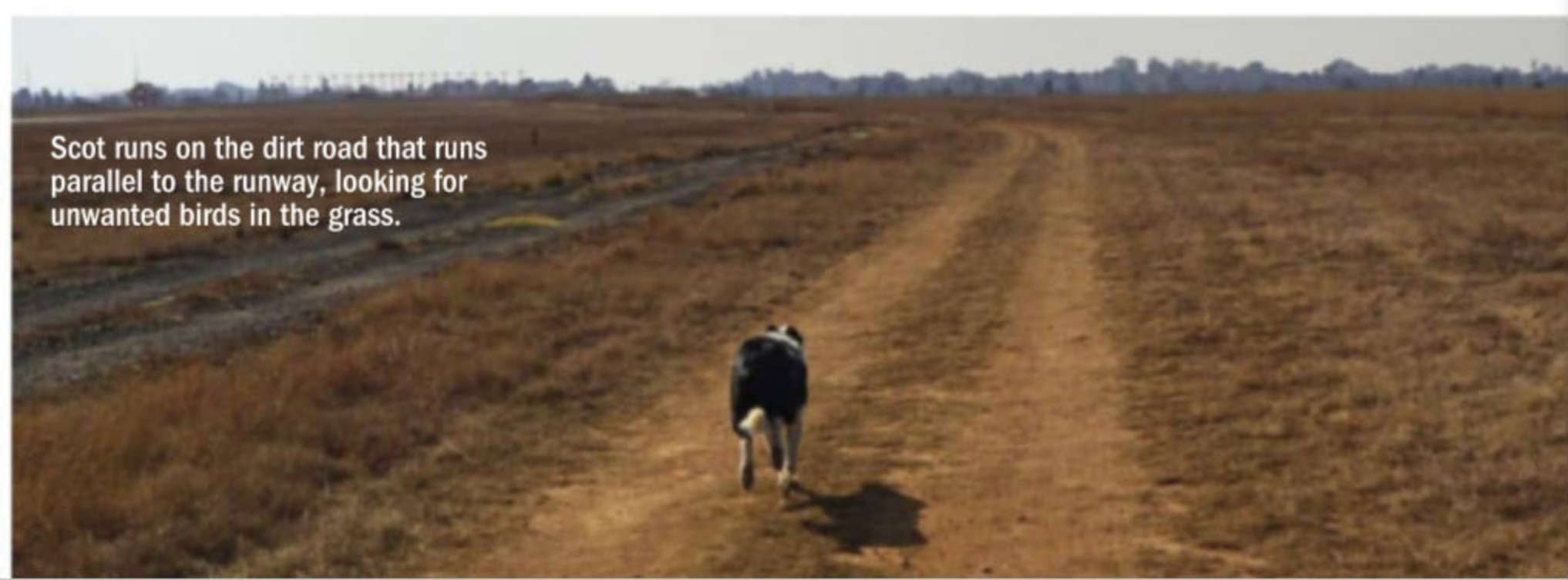
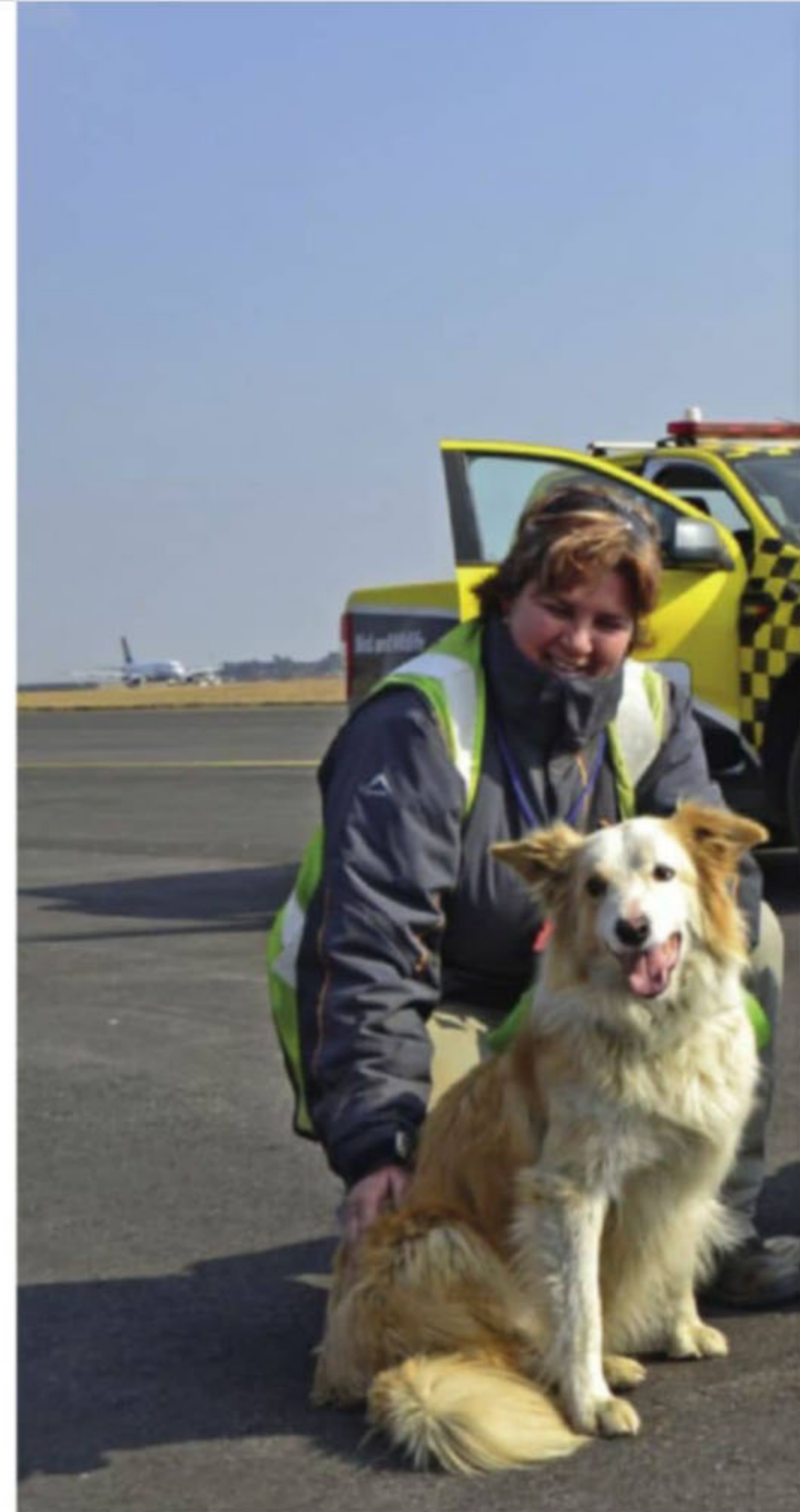
A dog's bloodline is the story of his heritage. It tells us about his ancestors, their temperaments and other characteristics of his breed.

HOW DO THEY TRAIN THESE DOGS?

Certain dog breeds have the natural instincts needed for the job. "Potential airport dogs are selected as puppies and trained for about 15 to 18 months. They need to come from a background where the bloodlines indicate an inherent (built-in) ability to work," says Melissa Hofmann, Senior Wildlife Officer for the Airports Company South Africa (ACSA).

Border Collies are very intelligent, easy to train and can learn to alter their natural ability to herd into an ability to chase. English Springer Spaniels love searching for birds in dense vegetation. So these two breeds are ideal for airport jobs.

The dogs need to be kept in tip-top condition. They must be fit and healthy. They are fed supplements and high-quality food and get regular tick and flea treatments. They are also groomed regularly, as they run through blackjacks and long grass every day.



Scot runs on the dirt road that runs parallel to the runway, looking for unwanted birds in the grass.

DID YOU KNOW?

This operation is known as the Bird Strike Avoidance Project.



The team that makes it all happen at OR Tambo International Airport is (from left to right) Ronel Steenkamp and her dog Bolt, Mariano Booysen and his dog Chase, Melissa Hofmann and her dog Scot, and Rabelani Ravuluma handling Griffon the Springer Spaniel for Lionel Sewraj.

Scot the Border Collie reacts to the command of Melissa Hoffman, his handler, to lie down on the spot.



156

The confirmed number of bird species in the area.

Handler Mariano Booysen and his dog Chase on patrol.



HOW LONG DO THEY DO THIS FOR?

Like any working dog, airport dogs work until they slow down due to age or medical conditions. Then they are retired, and generally live a quieter life at their handler's home. "My first Border Collie, BD, was retired on my plot and taught my Boxer dogs to chase birds. Quite a funny sight," says Melissa.

DID YOU KNOW?

The environmental team at OR Tambo first tried using scarecrows to chase away the birds. But, when they saw hadedas sitting right underneath them, they knew they had to find a better way...

WHAT IS THE TEAM LIKE?

Animaltalk magazine editor, Mientjie Kleinhans, went to visit the dogs to find out what their daily routine is like. There were two Border Collies and two English Springer Spaniels patrolling the runways.

The dogs arrive early in the mornings (as the birds mainly gather at dusk and dawn) and are set off to track scents. When they hear a whistle (different from the one used to ask them to chase), they know that they must lie flat and wait for their handlers to catch up with them.

After their morning shift, they accompany their handlers to meetings and other admin duties. Then it's back to chasing again, before going home for a good night's rest.

Next time you fly into or out of OR Tambo International airport, be sure to look out for these awesome dogs!

Bolt is showing off his chasing skills in the grass next to the runway.



OTHER ANIMALS YOU MAY SPOT FROM AN AIRCRAFT AT OR TAMBO:

- ★ Reedbuck and duikers
- ★ Scrub hares
- ★ Honey badgers
- ★ Large spotted genets
- ★ Black-backed jackals
- ★ Slender mongoose
- ★ African civet



OCEAN Q&A

Things you didn't realise you w

HOW DOES HUMAN NOISE AFFECT OCEAN LIFE?

The background volume in our oceans has roughly doubled in intensity each decade since the 1950s, due to increased shipping. Meanwhile, military sonar devices blast out sound waves, as do underwater air guns that are used when searching for oil and gas deposits.

In noisy seas, dolphins and whales have trouble communicating with each other. Some sing or whistle louder, while others give up and fall silent. Sonar seems to disorient these animals (make it difficult for them to sense where they are in space) and some end up coming up to the surface too quickly, and suffer decompression sickness (where you go from high pressure to a lower pressure too quickly, and get sick or injured as a result).

In lab studies, scallop larvae exposed to noise pollution developed deformed

bodies, fish were deafened, and jellyfish, squid and octopuses suffered damage to their balance organs, which affected their sense of orientation. Air guns also kill tiny zooplankton, from more than 1km away.

As with plastic pollution, it's not yet clear how noise pollution impacts entire populations or ecosystems. To find out more, scientists have been using times when the seas are quieter (like during the coronavirus pandemic) to study noises up to 3,000m underwater. We don't yet know how the reduction in noise affected sea life last year, but whales in Canada's Bay of Fundy provided clues many years ago. Studies found that they had lower levels of stress hormones in their poo when shipping was halted following the 9/11 attacks. As the noise ramped back up, the whales became stressed again.

DID YOU KNOW?

Humans make a lot of unwanted noise, but the blue whale is in fact the loudest animal on Earth! She produces a low-frequency sound that is 188 decibels – that's louder than a jet plane.



WHAT IS THIS CREATURE?

He's called a red-lipped batfish, and he can be found in the waters surrounding the Galapagos Islands – some 75m down. They are adapted to life as bottom dwellers, living and feeding on the sea floor. They aren't fab swimmers, rather using their modified fins as makeshift legs to 'walk' along the sand.

If he feels the need for speed, however, he can push off using his pelvic fins, utilising his muscular tail to propel himself through the water. This fish also sports an odd fleshy appendage on top of his head, called an illicium, which contains a chemical that lures the small fish and invertebrates that he eats. With no known predators, it's likely we will be seeing that pout for some time to come.

DID YOU KNOW?

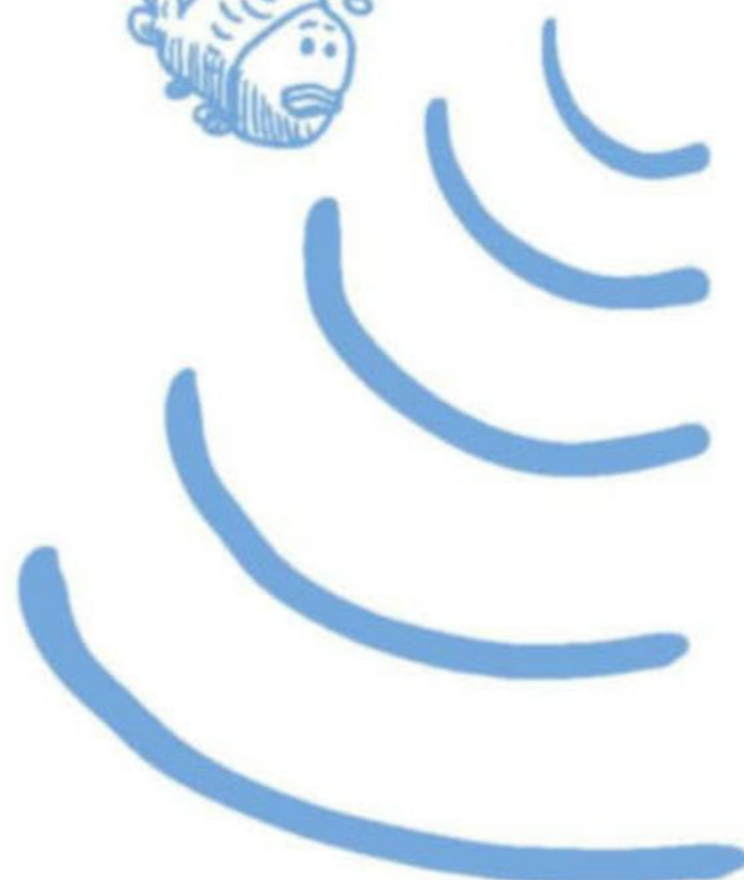
A grey whale once travelled 22,511km – the furthest known mammal migration.

5%

The estimated area of the ocean floor that has been mapped in detail... we have a long way to go!

DID YOU KNOW?

The Mid-Oceanic Ridge runs along the ocean floor between all the continents, and is the longest mountain range on Earth at nearly 65,000km. For more about mountains, see page 8!



STOP that NOISE!!!

DID YOU KNOW?



In 1493, explorer Christopher Columbus was sailing near the Dominican Republic when he wrote in his log that he saw three mermaids. Columbus made mention of the fact that they were "not half as beautiful as they are painted". It is thought that what he saw were not mermaids at all, but manatees!

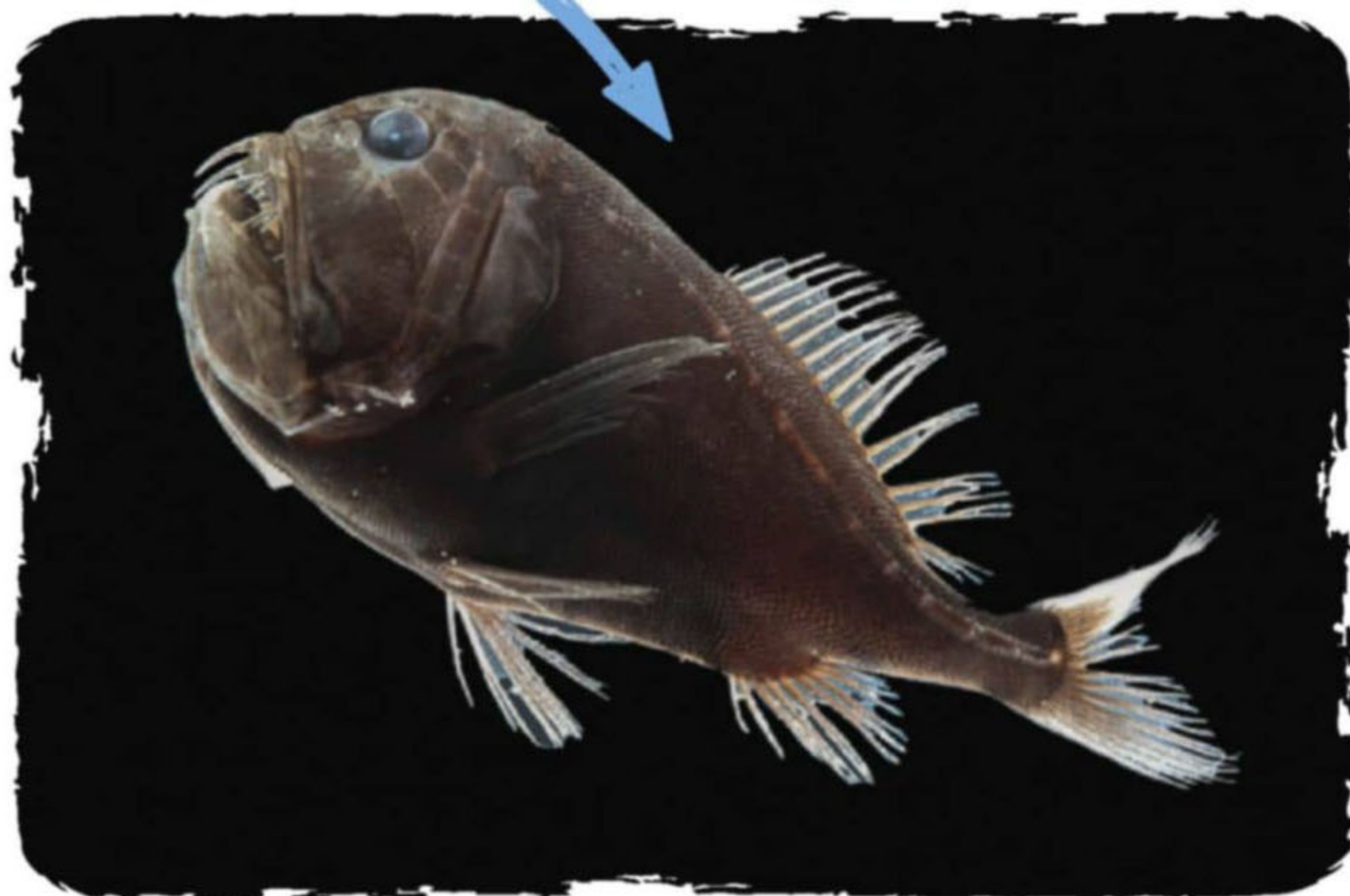


CAN DEEP SEA FISH ABSORB LIGHT?

As you can imagine, fish who live way down at the bottom of the ocean don't see much light. Scientists have been fascinated by them, because the skin of some of these fish absorbs more than 99.95% of the light that hits them, making them appear ultra-black. In the dark environment where they live, even the tiniest bit of light can attract unwanted attention, so the intense black colour improves their chances of survival.

Dr Karen Osborn, who co-led a study on the topic, first discovered the incredible properties of the fish when she tried to photograph some of the specimens that she'd brought from the deep sea. Despite having high-tech equipment, she couldn't see detail on the images - the fish were 'sucking up' all the light!

So far, researchers have found 16 species of fish who use this method to appear ultra-black in the deep sea. As the species are not closely related, it could just be a common strategy.



RAPID-FIRE QUIZ

See how many of these questions you can answer correctly:

1. Which is the world's biggest ocean?
2. How much of Earth's surface is covered by oceans?
3. What do you call a person who studies oceans?

Answers: 1. The Pacific Ocean, 2. Around 70/71%, 3. Oceanographer



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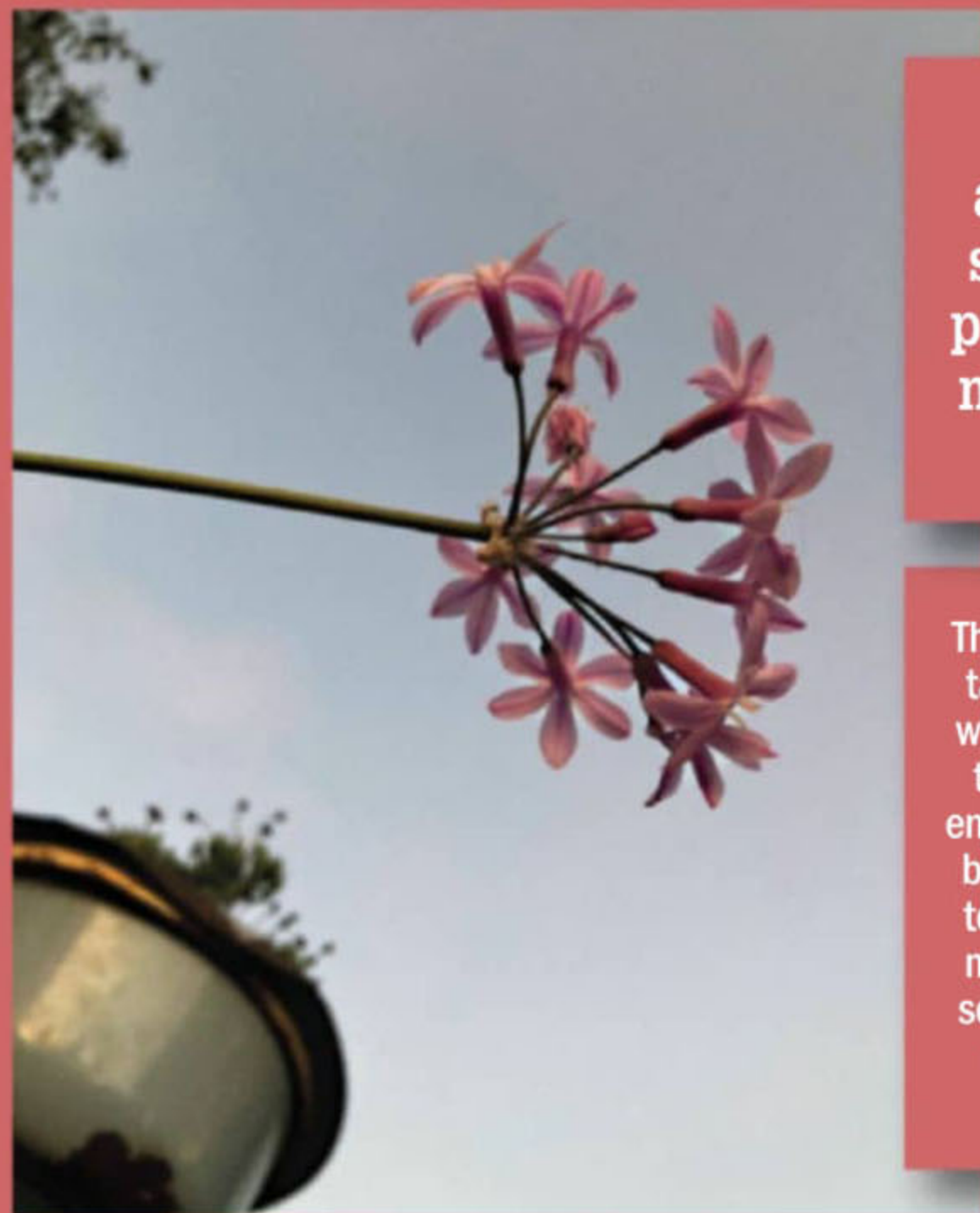
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YOUR AMAZING TALENT

We have some seriously talented readers – just take a look at this!



"It is always the simple that produces the marvelous."

– Amelia Barr

These photos were taken by Athena, who is 12. Athena tells us that she enjoys photography because she gets to be outdoors in nature, and finds so many beautiful things to take pictures of.



DO YOU, OR A FRIEND, HAVE A COOL TALENT?

Don't hide it! Share it! Send an email to vjunior@panorama.co.za with the words 'VI Jr Talent' in the subject line, and tell (or show) us what your talent is. Poetry? Photography? Model building? Burping the alphabet? We want to know about it, because we're pretty sure our readers are the coolest kids out there!

10 COOL FACTS ABOUT AMELIA EARHART

Things you should know about this famous female aviator

- 1 Amelia was born on 24 July 1897 in Kansas, USA. She wasn't raised to be a 'nice little girl' and did things that weren't usual for a girl of the time – like wearing pants instead of skirts and exploring, climbing trees and hunting.
- 2 She was home-schooled until the age of 12, when she entered school for the first time. Amelia was very fond of reading, spending a lot of time in the library. She had desires to become successful in a male-dominated career, and considered law and mechanical engineering.
- 3 During World War 1, she volunteered as a nurse's aide to assist returning injured soldiers. She received training and worked in the kitchen and dispensary (where they give out medicines). In 1918, while working at the Spadina Military Hospital, Earhart fell ill with pneumonia and ended up suffering after-effects, like chronic sinusitis, which carried on throughout her life.
- 4 In 1920, Earhart visited an airfield with her father and got to take her first flight. "By the time I got 200-300 feet off the ground, I knew I had to fly," she said. She set about getting various jobs to pay for flying lessons. Her first one was with Anita 'Neta' Snook, a female aviation pioneer.
- 5 Just a few months later, Earhart bought her first little plane – a bright yellow biplane she called 'The Canary'. She used it to fly up to 4,300m and set her first record – the highest altitude reached by a female pilot. In 1923, she became only the 16th woman in the United States to get a pilot's license.
- 6 In 1928, Earhart received an offer to become the first woman to fly across the Atlantic, after Charles Lindberg had undertaken the first solo flight across that ocean the year before. Earhart was accompanied by two male pilots and never got to fly the plane herself. Despite setting a record, Earhart likened the trip to being 'like

"The woman who can create her own job is the woman who will win fame and fortune."

DID YOU KNOW?

The search and rescue efforts launched immediately after Earhart's disappearance were the most expensive up to that point in history – running into millions of dollars. But it was like trying to find a needle in a haystack, and nothing came of them.

"The stars seemed near enough to touch and never before have I seen so many. I always believed the lure of flying is the lure of beauty, but I was sure of it that night."

Earhart in front of the plane she disappeared in.



Earhart with the sports plane she bought in 1928.



Inside the cockpit of her Lockheed Electra.

On the wing of her Lockheed L-10E Electra plane with Fred Noonan – her navigator.



Over the years, many pilots have done 'memorial' flights, taking the same flight path (and in one case even in the same type of plane) that claimed Earhart's life. Luckily all were successful.

"Amelia is a grand person for such a trip. She is the only woman flyer I would care to make such an expedition with because, in addition to being a fine companion and pilot, she can take hardship, as well as a man, and work like one."

– Fred Noonan, Amelia's navigator for the around-the-world flight



- 7** baggage' and said she hoped that maybe one day she'd be able to do it herself. Over the next few years, Earhart's celebrity status grew, and she endorsed products and wrote magazine columns to pay for her flying. She set a record in 1928 as the first female pilot to fly alone across North America and back.
- 8** In 1930, Earhart became the first president of the Ninety-Nines – an organisation that promoted the cause of women in aviation.

- 9** In 1932, she became the first woman to fly solo nonstop across the Atlantic. She received many awards for this achievement. Over the next few years, she set numerous other records, but she had her eye on her great desire – to become the first person to "circumnavigate the globe, as near to its waistline as could be".
- 10** This turned out to be her last flight. Her plane disappeared on 2 July 1937 over the Pacific Ocean as she and her navigator headed for

Howland Island, near Hawaii. A coast guard was waiting to guide her in, but she never arrived. Earhart had been experiencing trouble with her radio and, though the coastguard tried for six hours to reach her and give her directions, she was never heard from again. A year and a half later, she was formally declared dead. There are many stories surrounding her disappearance, as no trace of her plane was ever found...

ORGANS

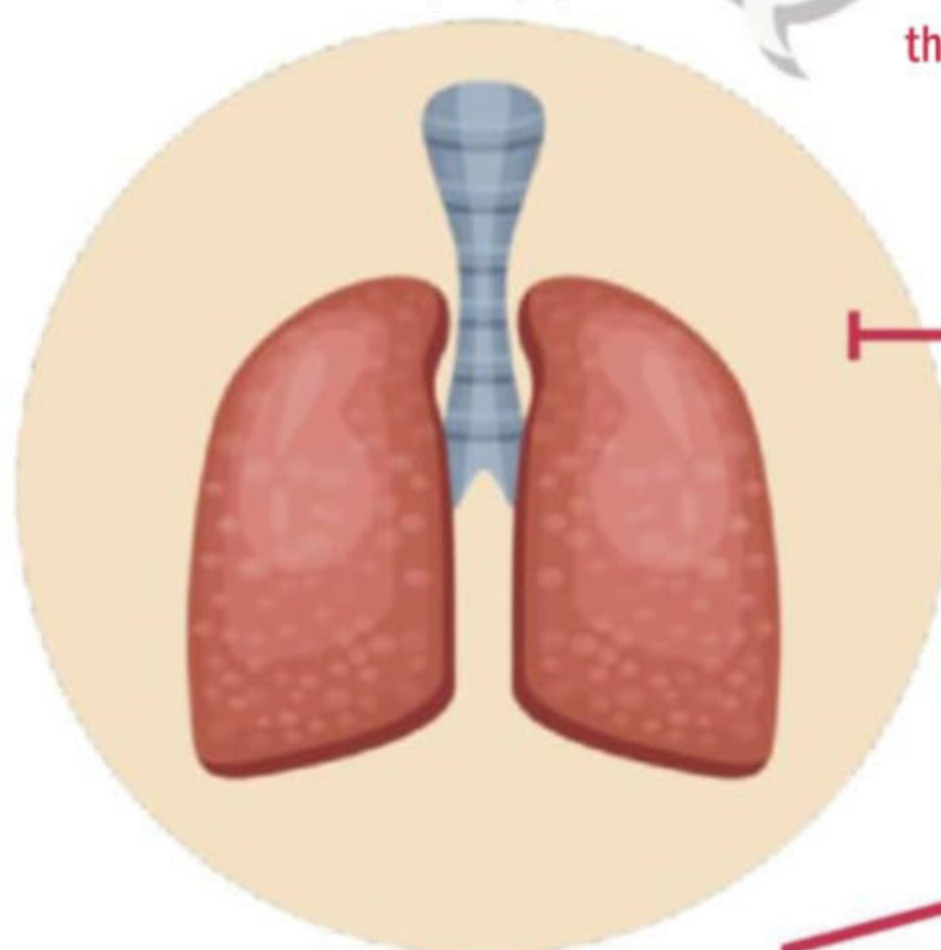
How much your organs weigh, and other fun facts



LUNGS

Your lungs weigh around 1kg – the same weight as an average pineapple. They are around 24cm in height and can hold up to 6ℓ of air!

LUNGS



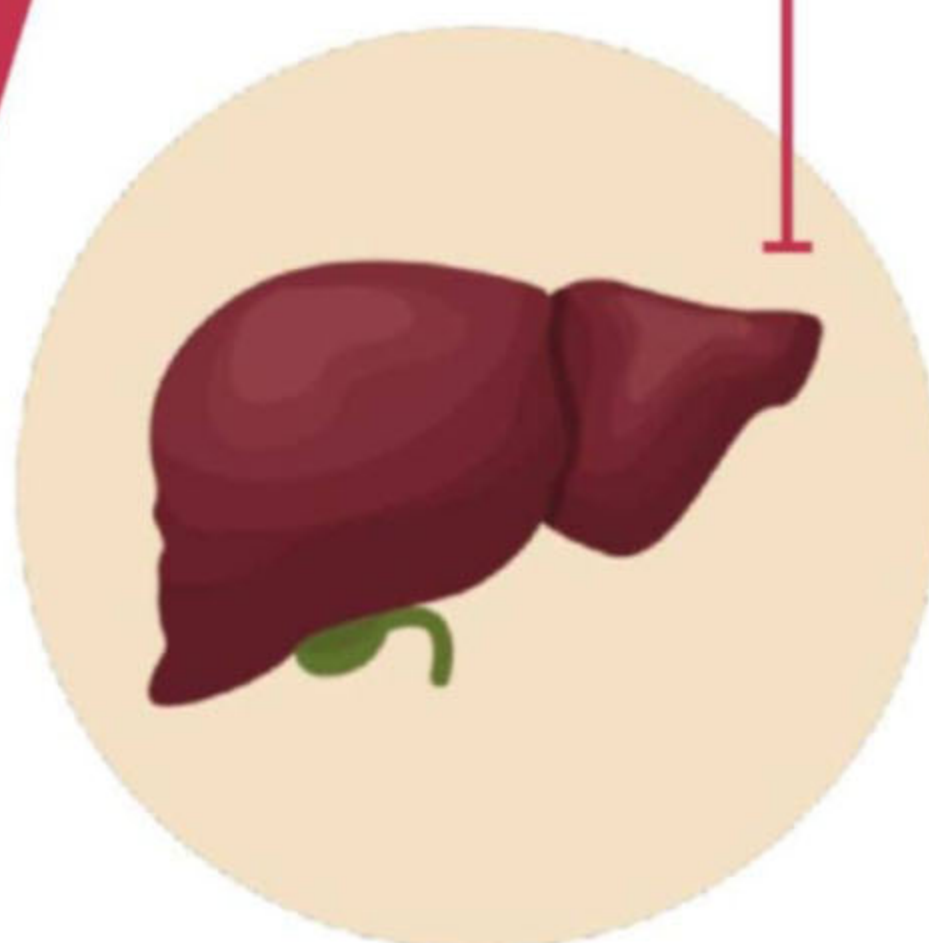
DID YOU KNOW?

Certain turtles have the ability to absorb oxygen through their lower intestines (cloacal respiration). So, essentially, they can breathe through their bums!

LIVER

The biggest internal organ in your body. It can weigh up to 1.5kg and is about the size of a football when you're an adult.

LIVER



DID YOU KNOW?

If you think your liver sounds huge, think again. The basking shark has a liver that takes up 25% of her total body weight. And considering these sharks can weigh up to 5.4 tonnes, that is one **GIANT** liver!



2mm

The average thickness of the skin on your body.

SKIN

It's probably not surprising, considering how it stretches over your entire body, that the skin is the heaviest and biggest organ in the human body. It is estimated to make up around 16% of your body mass.

BRAIN

Your body's control centre weighs around 1.3-1.4kg. If you clench two fists together, that's around how big it is.

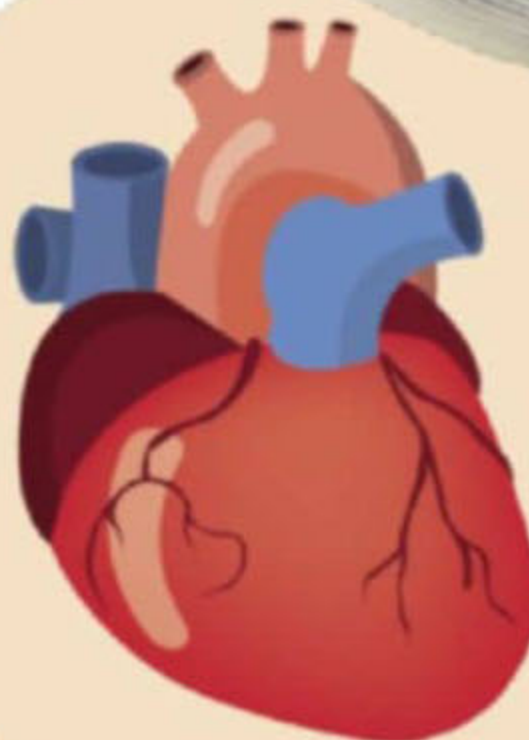
100 billion

The estimated number of neurons (nerve cells) in your brain.



BRAIN

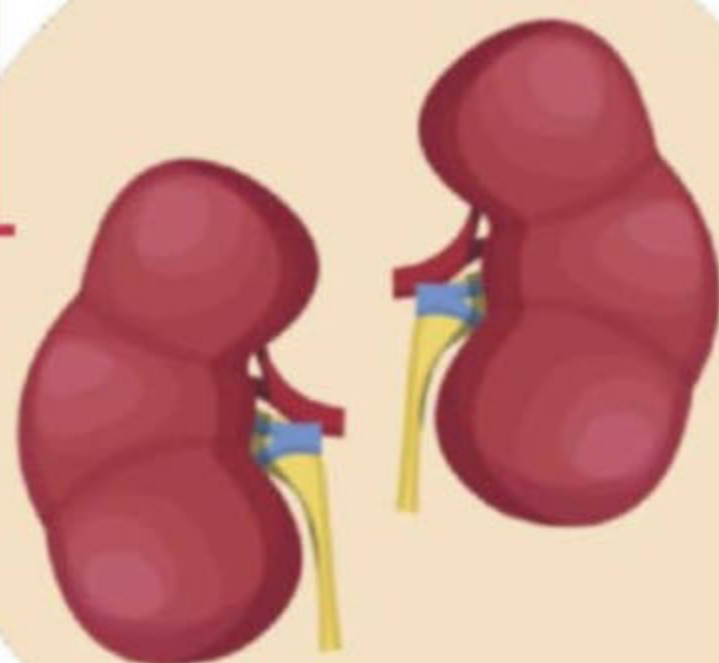
HEART



HEART

At 12cm long and weighing in at 250-350g, the heart is the fourth largest organ in your body. Compare that to the blue whale's heart, which is around 900kg and only beats once every 10 seconds.

KIDNEYS



KIDNEYS

These important little organs are around 10-12cm long and weigh between 81 and 176g (this varies between men and women, and according to your age). Each is around the size of a fist.

BUT WAIT!

There's something else to consider.... **INTERSTITIUM**. Huh? It's the fluid-filled spaces that connect your body together. If you add up all those spaces, that makes for a lot of mass. But there is disagreement about whether or not it would count as an organ. More research is needed to get a clear answer on that one.





MAP OF THE MOON

Thanks to a massive effort, the entire surface of the moon has been mapped for the first time

It took decades and a huge collaborative effort between the US Geological Survey (USGS), NASA and the Lunar Planetary Institute, but it was time well spent. We finally have a detailed map of the moon.

HOW DID THEY DO IT?

They had to go back a long way! From data collected during the Apollo-era missions, right up until very recent satellite missions. They also added in equatorial info from the SELENE (Selenological and Engineering Explorer) mission led by JAXA (Japanese Aerospace Exploration Agency), and from NASA's Lunar Orbiter Laser Altimeter.

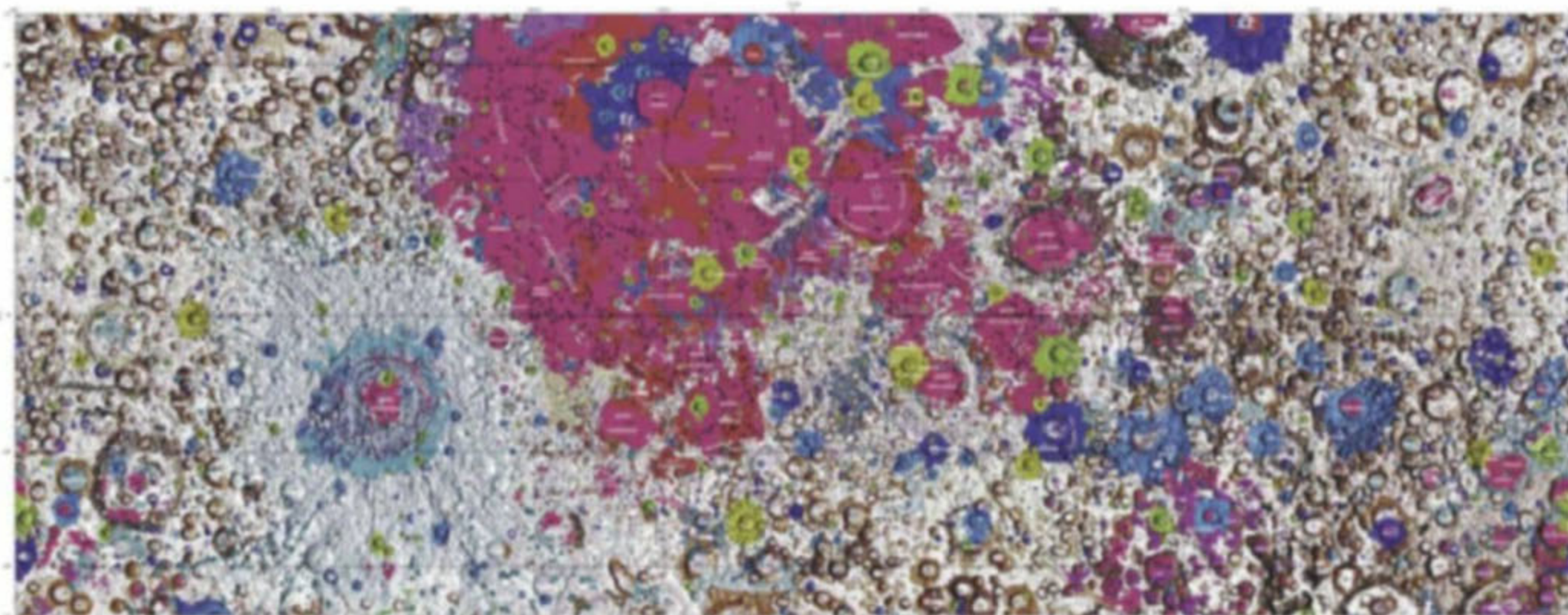
WHY DID THEY DO IT?

The lunar map, which has the official name Unified Geological Map of the Moon, provides "vital information for new scientific studies", says USGS geologist, Corey Fortezzo. It will serve as a blueprint of the moon's surface geology for all future human missions. They can now see rock layers and other features in minute detail on a 1:5,000,000 scale.

**DID YOU
KNOW?**

The reason there is no **APOLLO 13** on this list is because the mission never made it to the moon. There was a problem with an oxygen tank and the crew had to make a dangerous trip back to Earth. Luckily, all three astronauts made it back safely.

DID YOU KNOW?
Triskaidekaphobia is the fear of the number 13.
The fear of Friday the 13th is called friggatriskaidekaphobia.



Unified Geologic Map of The Moon
© M. Fortezzo, P.D. Spudis, and S.J. Reber
2010

CREWED MISSIONS TO THE MOON

(X = walked on the moon)

APOLLO 11

LAUNCH: 16 July 1969



CREW: Neil Armstrong (X), Buzz Aldrin (X), Michael Collins
The crew of Apollo 11 made history by successfully completing the national goal set out by President John F Kennedy eight years before that – to perform the first crewed lunar landing and return back to Earth.

APOLLO 12

LAUNCH: 14 November 1969



CREW: Charles Conrad (X), Alan Bean (X), Richard Gordon
The second Apollo crew carried on with exploration tasks, deployed experiments, and fetched pieces of a lander that had been on the moon for two years.

APOLLO 14

LAUNCH: 31 January 1971



CREW: Alan Shepard (X), Edgar Mitchell (X), Stuart Roosa
Apollo 14 was the eighth crewed Apollo mission, and the third to land on the moon. They completed two moon walks, ran science experiments, and collected 58kg of rock and soil.

APOLLO 15

LAUNCH: 26 July 1971



CREW: David Scott (X), James Irwin (X), Alfred Worden
This was the first Apollo mission capable of a longer stay time. The crew remained on the moon's surface for 18 hours and 37 minutes – a new record at the time. It was also the first to use the Lunar Roving Vehicle.

APOLLO 16

LAUNCH: 16 April 1972



CREW: John Young (X), Charles Duke (X), Thomas Mattingly
During the Apollo 16 mission, the crew drove more than 25km over three excursions using the Lunar Roving Vehicle, and collected 130kg of samples from the moon's surface.

APOLLO 17

LAUNCH: 7 December 1972



CREW: Eugene Cernan (X), Harrison Schmitt (X), Ronald Evans
Apollo 17 was the last mission in which humans travelled to the moon. It hosted the first scientist-astronaut (geologist Harrison Schmitt), who collected important samples of lunar rock.



Above: The Apollo 11 command module is now displayed at the Space Centre in Houston.

Below: The Apollo 13 capsule on display at Kennedy Space Centre in Florida.



Random facts for fun!



7

The number of minutes it takes the average person to fall asleep.



Shrews have a very fast metabolism, meaning they have to eat three times their bodyweight per day.

6000 BC

When polished volcanic glass was first used as mirrors.

DO TWO MIRRORS FACING EACH OTHER PRODUCE INFINITE REFLECTIONS?

It's always fun to look at the multiple reflections formed when two mirrors face each other in lifts, changing rooms and so on. But, while they seem to extend into the infinite, in reality, they get darker and darker and fade into invisibility. That's because mirrors absorb a small fraction of the energy of the light striking them each time. Thus, even the best mirrors are unlikely to create more than a few hundred visible reflections.



DON'T FORGET TO ENTER!



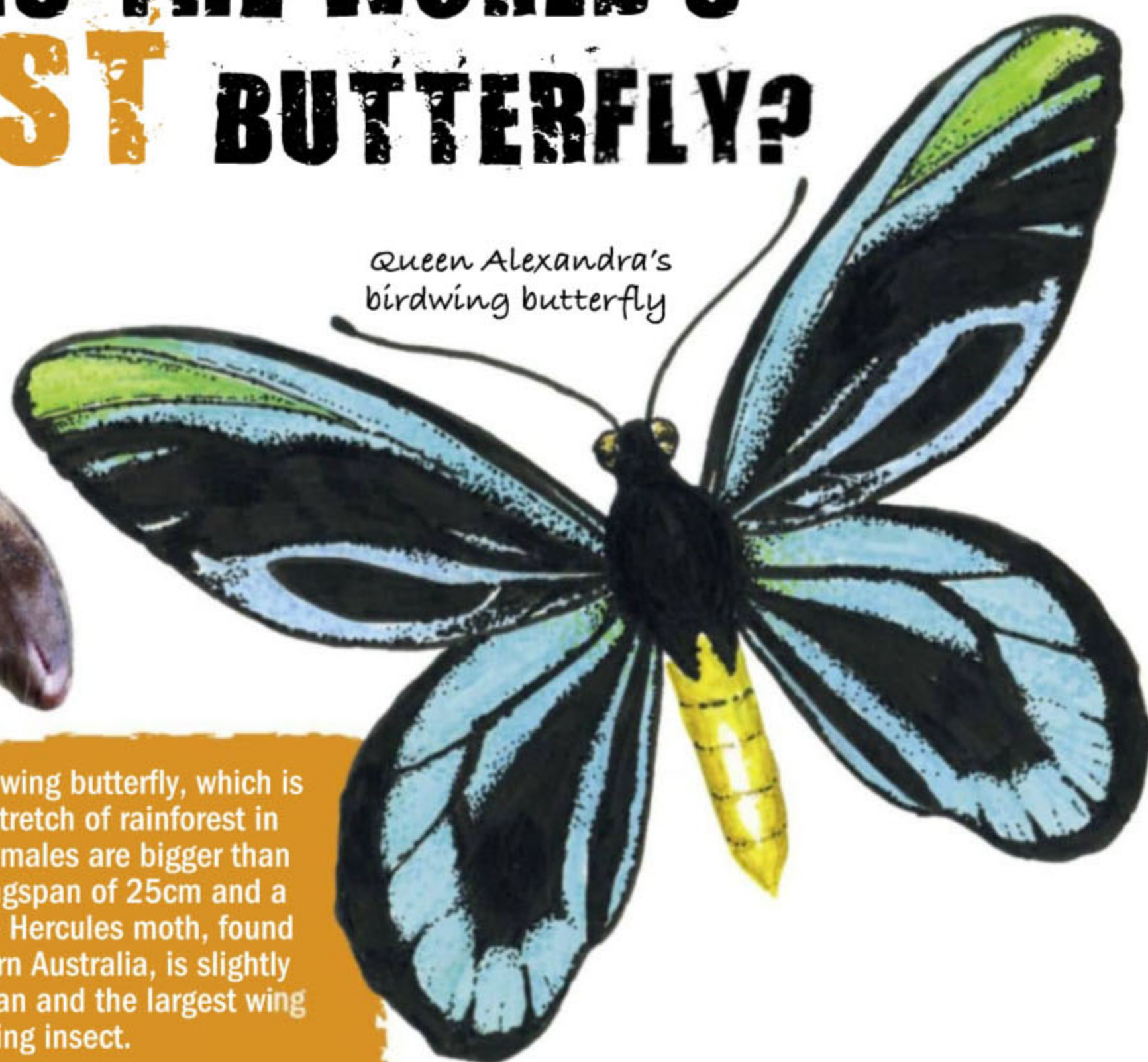
The Super Cartons want to teach you more about how you can unlock the power of cartons when you recycle them. Simply use the camera on your smartphone and hover over the QR code to access a page that will allow you to read more, and to enter a competition to **win one of 10 R1,000** cash prizes. You can enter as many times as you like, but make sure to do it before the closing date of 31 May 2021.

WHAT IS THE WORLD'S BIGGEST BUTTERFLY?



Hercules moth

Queen Alexandra's birdwing butterfly

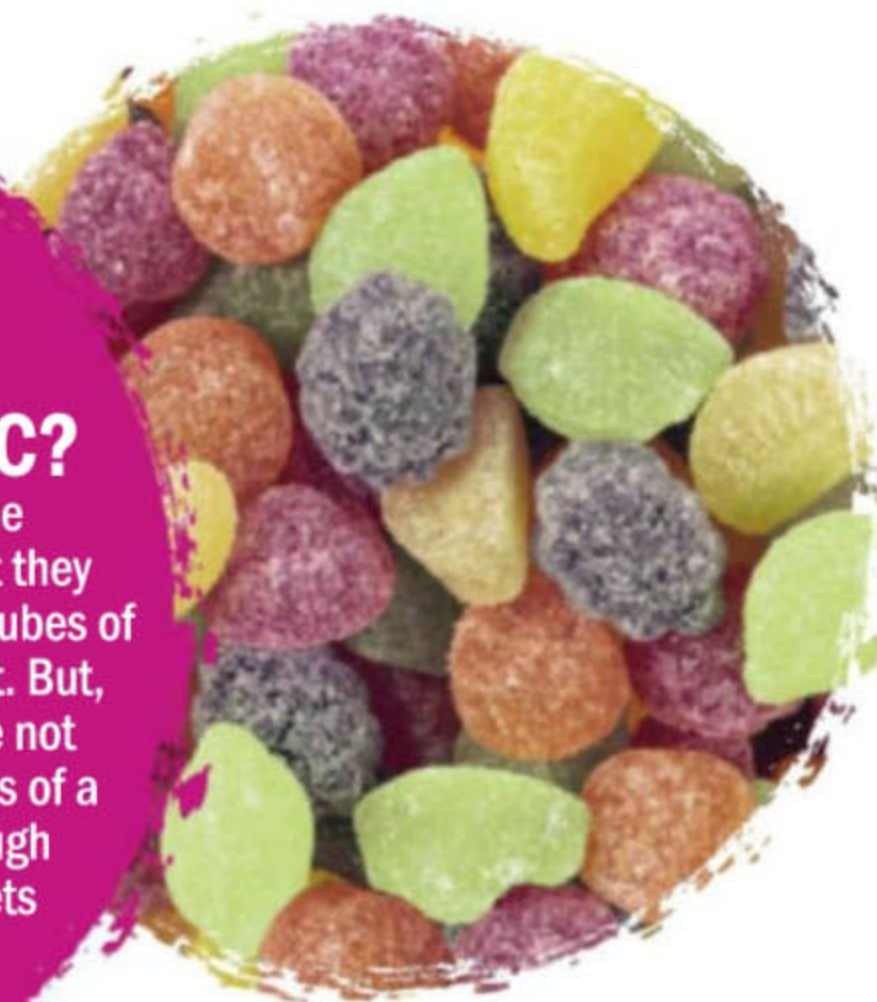


The Queen Alexandra's birdwing butterfly, which is only found in a 100km² stretch of rainforest in Papua New Guinea. The females are bigger than the males, and have a wingspan of 25cm and a body of 8cm in length. The Hercules moth, found in New Guinea and northern Australia, is slightly larger, with a 27cm wingspan and the largest wing area of any living insect.



How many fruit pastilles would you need to eat to get a healthy amount of vitamin C?

Rowntree's Fruit Pastilles are flavoured with the concentrated juice of seven fruits. But the amount they contain is tiny. Figures from Nestlé claim that 11.5 tubes of sweets have as much vitamin C as a portion of fruit. But, when you eat regular fruits and vegetables, you're not only getting vitamins, you get fibre and the benefits of a varied diet. And what's worse is that – even though you may get vitamin C when you eat these sweets – you're also getting tonnes of calories, most of which are made up of sugar.



WHY DO WE SWEAT WHEN WE'RE ANXIOUS?

This is part of our fight-or-flight response, and it happens when our nervous system releases hormones, including adrenaline, which activate our sweat glands. Brain scans reveal that sniffing someone else's panic-induced sweat lights



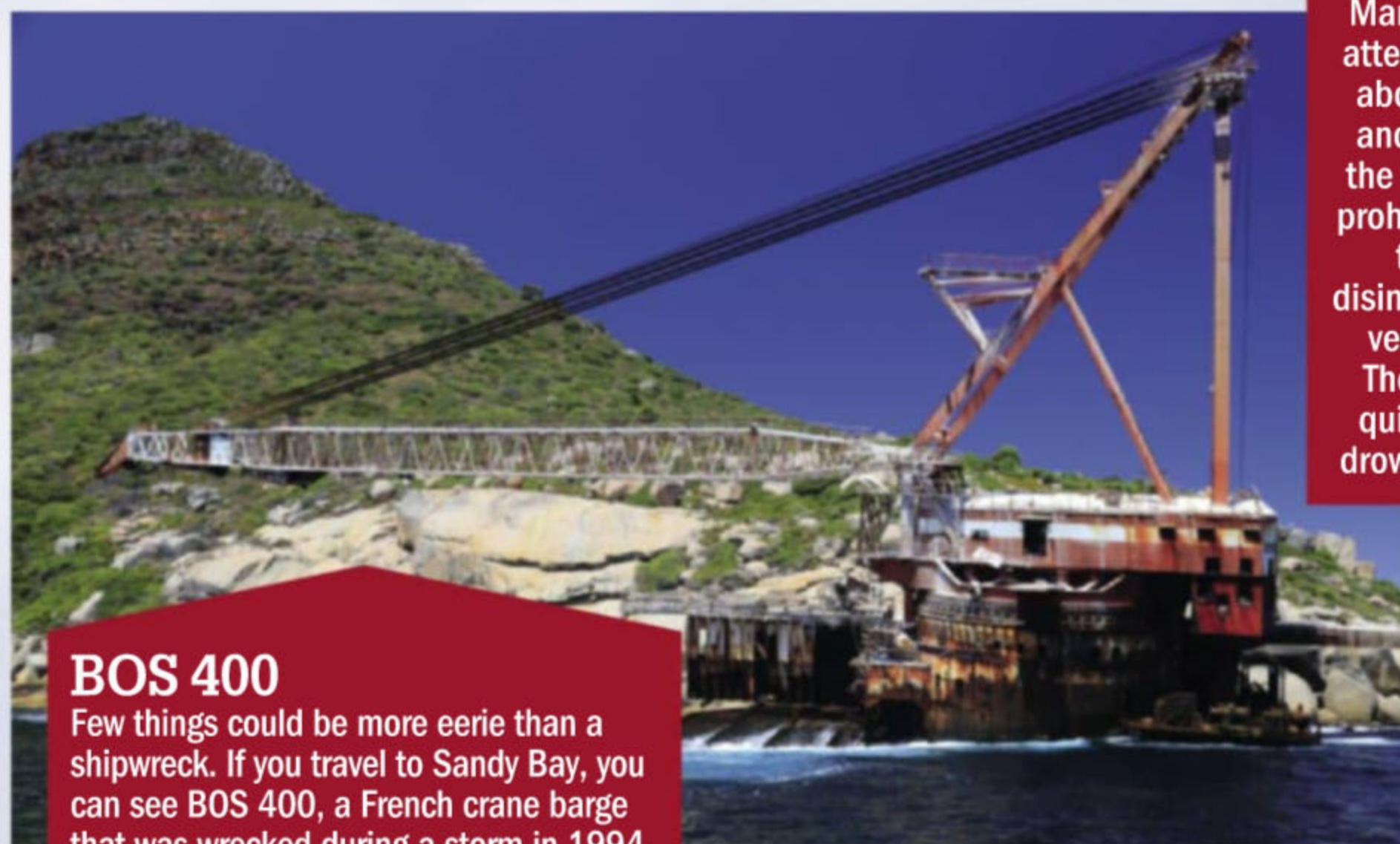
up regions in the brain that handle emotional and social signals. We are SO glad we weren't participants in that study! One theory is that this type of sweating is an evolved behaviour that makes others' brains more alert and primed for whatever is making us nervous – very useful if there is a tiger on the loose...

EXPLORE YOUR OWN COUNTRY

We may all know about SA's top tourist destinations, but travel off the beaten path, and you'll find awesomeness

DID YOU KNOW?

Many people have attempted to climb aboard the wreck and jump off into the sea, but this is prohibited, because the wreck is disintegrating and is very dangerous. There have been quite a few near-drowning incidents.



BOS 400

Few things could be more eerie than a shipwreck. If you travel to Sandy Bay, you can see BOS 400, a French crane barge that was wrecked during a storm in 1994. At the time, it was being towed by a boat and the towing rope broke loose, sending the vessel aground. It was badly damaged and, as it would have been too expensive to fix, it was left where it was. You have to walk to view this secluded spot, but it's a sight worth *trekking* for.

THE TSWAING CRATER

Meaning 'place of salt' in Setswana, this 220,000-year-old meteorite crater lies outside Pretoria. It has a 25-mile radius and now contains a salt lake and dense trees. Stone Age artefacts and pottery have been found in and around the crater, and it is assumed that early humans gathered salt from the bottom of the hole. During the 20th Century, people mined the area's salt, and this carried on until the 1950s. It is now, however, a protected area and you can go there to take in the natural beauty, and hike up and down the trails.

DID YOU KNOW?

The meteorite that hit in Tswaing was about half the size of a football field!



**DID YOU
KNOW?**

Pineapples can be used instead of pumpkins to make some pretty freaky Halloween jack-o-lanterns.



THE BIG PINEAPPLE

How did we not know that Bathurst in South Africa is home to the world's largest pineapple building? At about 17m tall, it has been around since the mid-1980s. Bathurst is an agricultural area and is famous for its pineapple farms, so the local farmers honoured the sweet fruit by building this giant one, which is made of metal and fibreglass. Inside is a museum dedicated to the fruit and pineapple products that you can buy.

**DID YOU
KNOW?**

Another Xhosa legend says that *esiKhaleni* is a gateway to the world of their ancestors.

**260 million
years**

The estimated age of the Hole-in-the-Wall.

HOLE-IN-THE-WALL

In the small town of Coffee Bay is a huge rock outcrop that sits in the water just before the mouth of the Mpako River. The cliff is 80m high and about 300m long, but aside from its size, it has another notable feature – a round hole through the rock. In Xhosa, it is known as *esiKhaleni* ('the place of sound'), but most know it as the Hole-in-the-Wall, for obvious reasons. According to local lore, a beautiful girl once lived in a village on the nearby banks of the Mpako River. One day, when she was sunning herself on a rock, a 'sea person' saw her and the two fell in love. The girl's father forbade her from seeing him, so one night, the sea people gathered and, with the help of a giant fish, rammed a hole into the cliff side and created chaos in the village. During this, the girl entered the sea and was never seen again.

HABOOB

Haboob means 'drifting' or 'blowing' in Arabic. It's a massive dust storm that occurs in dry areas. They happen in deserts, like the Sahara, and in the United States where there are giant dust plains. When cold air in a storm rushes quickly towards the ground, it picks up dust and sand, and makes what looks like a giant wall of dust. They can be more than 1km high and many kilometres wide. If you get caught in one, you need to quickly look for shelter, because it can prevent you from breathing properly.

WEIRD WEATHER

See some amazing weather phenomena and
discover what causes them



BELT OF VENUS

This phenomenon sees a pink band in the sky, which is – according to phenomena.org – actually an area between the Earth's shadow and the blue sky. It is visible at sunrise or sunset, and is best seen in summer. It happens when sunlight shines through less dense atmosphere, high above the skyline, and also through the denser atmosphere just above it. This sunlight is reflected back. At the same time, Earth's shadow is cast on the atmosphere, causing the dark blue at the bottom. Pretty amazing to see!

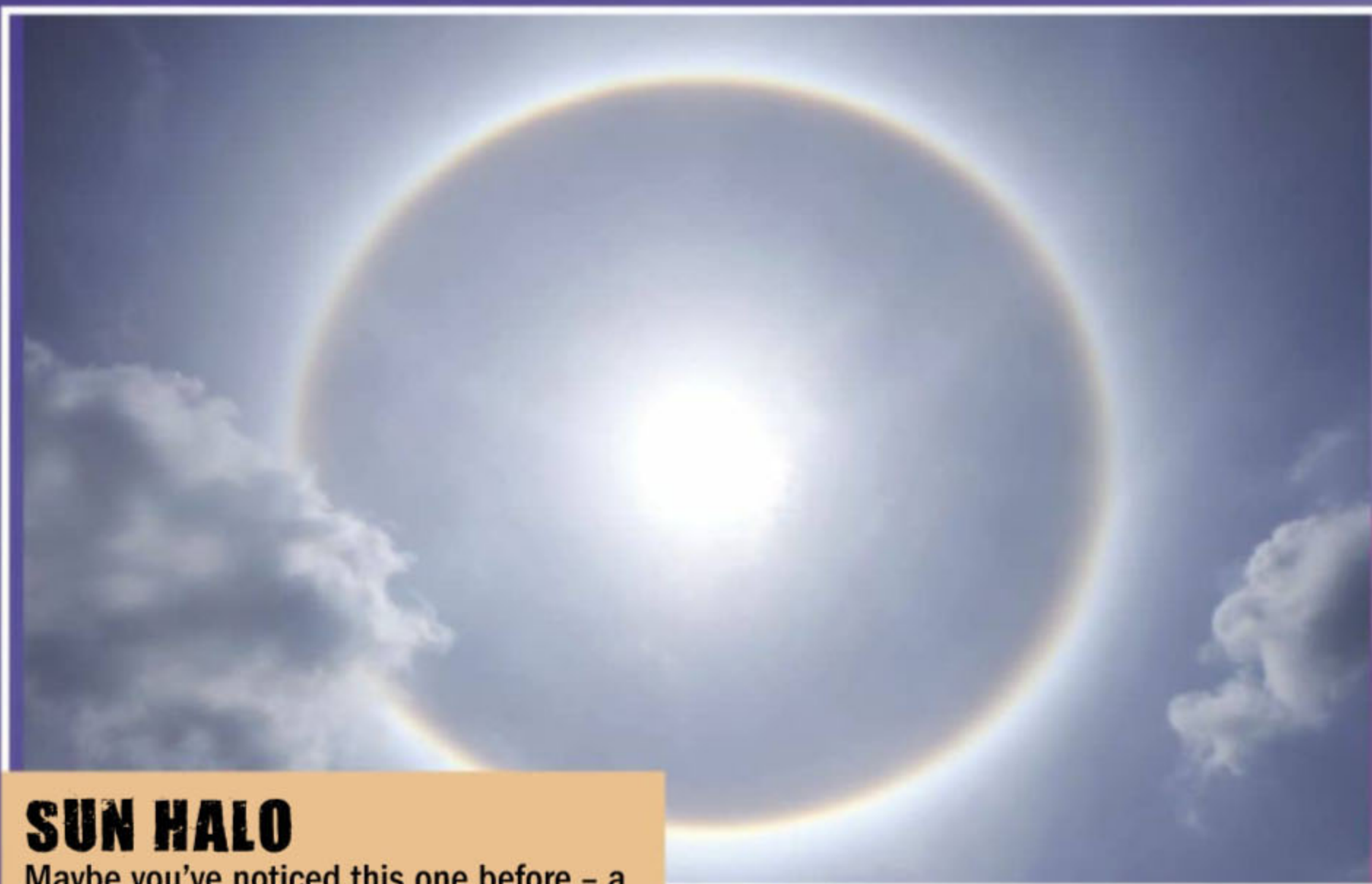


Venus is the Roman goddess of love and beauty.

BALL LIGHTNING

This rare phenomenon sees the sky light up with an orb of charged particles. No one is quite sure why it happens, but there is a theory that it occurs when a bolt of lightning hits silica-rich soil and sends the charged particles upwards to create the ball. Some are massive – in 2012, one measuring 4.8m was recorded.





SUN HALO

Maybe you've noticed this one before – a glowing halo surrounding the sun. It's caused by your eye picking up light that is reflecting off ice crystals in thin, wispy high-up clouds. It happens really high up, so you can see it even when it doesn't feel icy outside. You also get moon halos, though they aren't as spectacular to see.

FOGBOW

Similar to a regular rainbow, the fogbow is caused by sunlight interacting with water droplets. But, in this case, they interact with the water in mist, fog or clouds instead of raindrops. Because these water droplets are much smaller than raindrops, the fogbows don't have the same bright colours as a rainbow and, for this reason, they are often called 'white rainbows'.



WATERSPOUTS (SEASPOUTS)

When tornadoes form over the ocean, rivers or lakes, they suck up the water (and whatever is in it). They carry this water until they reach land, where they lose power and dump everything. This could be one of the reasons why people have reported that it's raining fish or frogs.



LENTICULAR CLOUDS

You'd be forgiven for mistaking these amazing clouds for UFOs. They are formed when moist air meets a big land mass (like a mountain) and strong winds force the air upwards to meet other moist air above the mountain. The two join and form these pancake-like clouds that appear not to move. When the sun shines on them, they can look gorgeous. But plain white looks just as cool, if you ask us!



10 COOL THINGS ABOUT THE BLUE DRAGON SEA SLUG

These beautiful blue slugs may be tiny, but they pack a punch



1. AN ANCIENT SEA GOD

The blue dragon was first discovered by a scientist named Forster over 242 years ago, in 1777. He named the strange creature *Glaucus atlanticus*, after the Greek sea god Glaucus, who was said to have eaten a magical herb that made him immortal.



2. TOPSY-TURVY

The blue dragon swallows air bubbles that allow him to float at the ocean's surface, alerting us to his presence. He has a little air-filled sac in his stomach that makes him float upside down. So, the interesting blue-and-white colour patterns we see are actually on the underside of the blue dragon, not the top.

3. CAN YOU SPOT HIM?

Countershading is a defence mechanism used by animals, where the top and underside of their bodies are two different colours. The blue dragon uses this technique as a form of camouflage. The bottom side (abdomen) is a deep blue with white stripes to mirror the colour of the waves, so that predators from above can't see him well. The top of his body is a light grey that camouflages him from predators below, blending in with the reflection of the sky.



4. CAUTION: POISONOUS

He can absorb toxic chemicals from his prey by eating their nematocyst, which is a stinger cell where the poison is stored. The toxin is stored in the finger-like tentacles on the sides of his body, which are called cerata, and when released, is potent and dangerous.

DID YOU KNOW?

Bluebottles are a type of colonial jellyfish. They are of a different sub-species called *Siphonophorae*. Their difference lies in the bluebottles having colonial organisms, instead of a multicellular organism like the jellyfish.

5. IMMUNE TO STINGING

Because of the toxicity of his prey, the blue dragon has a defence mechanism of his own. He has a hard disk underneath his skin, surrounded by a protective layer of mucus, that makes him immune to the stinger cells of his prey.

6. NO SEPARATE GENDER

Like most sea slugs, the blue dragon is hermaphroditic, which means that he can produce both eggs and sperm, but requires a mate to fertilise the eggs. Once fertilised, a string of eggs is released, and can sometimes contain 36 to 96 eggs. This creature lays eggs in driftwood or in the carcasses of his prey.

8. TINY AND DANGEROUS

While potentially dangerous, blue dragons can only grow up to 3cm in length. They live for between one month and one year, which is the standard lifespan of sea slugs.

7. BEWARE OF TEETH

The blue dragon has a jaw and a set of teeth that allows him to grip and remove chunks off his prey. His favourite food is the Portuguese man o' war, more commonly referred to as a bluebottle. The blue dragon eats the bluebottle by chewing off chunks.

DID YOU KNOW?

Many other marine animals use countershading as a defence mechanism. These include penguins, whales, dolphins and even sharks. This type of camouflage occurs in creatures who swim near the surface of the water, to protect them from creatures above and below them.

9. ON OUR BEACHES

The blue dragon lives in tropical oceans like the Pacific, Atlantic and Indian Oceans. South Africa falls between the Atlantic and Indian Oceans, which means that he can be found along the eastern and southern coasts of South Africa. Blue dragons have also been found in oceans in Europe, Australia and Mozambique.

10. A POWERFUL STING

The blue dragon's sting causes similar symptoms to that of the bluebottle, because of the way he absorbs his prey's toxins. His sting is so powerful that it overcomes prey larger than himself. If the blue dragon feels threatened, he will release the toxin he's stored up, resulting in a painful sting that can last up to an hour, and even blisters and scarring in rare cases. In extreme cases, where someone has a severe allergic reaction to the sting, and because of how concentrated the toxin is, the blue dragon can kill a person. So, while they're pretty to look at, don't pick them up! Remember what they say about dynamite coming in small packages, and admire these beautiful creatures from afar.



For more cool animal articles, be sure to get the latest issue of *Animaltalk* magazine at leading retailers or www.coolmags.co.za now!

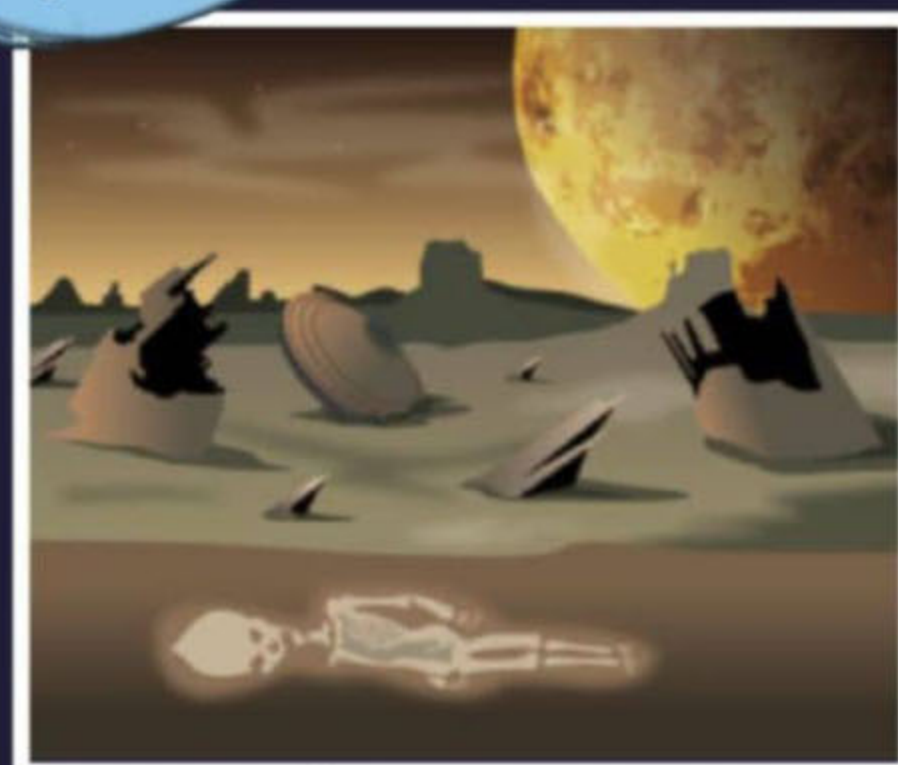
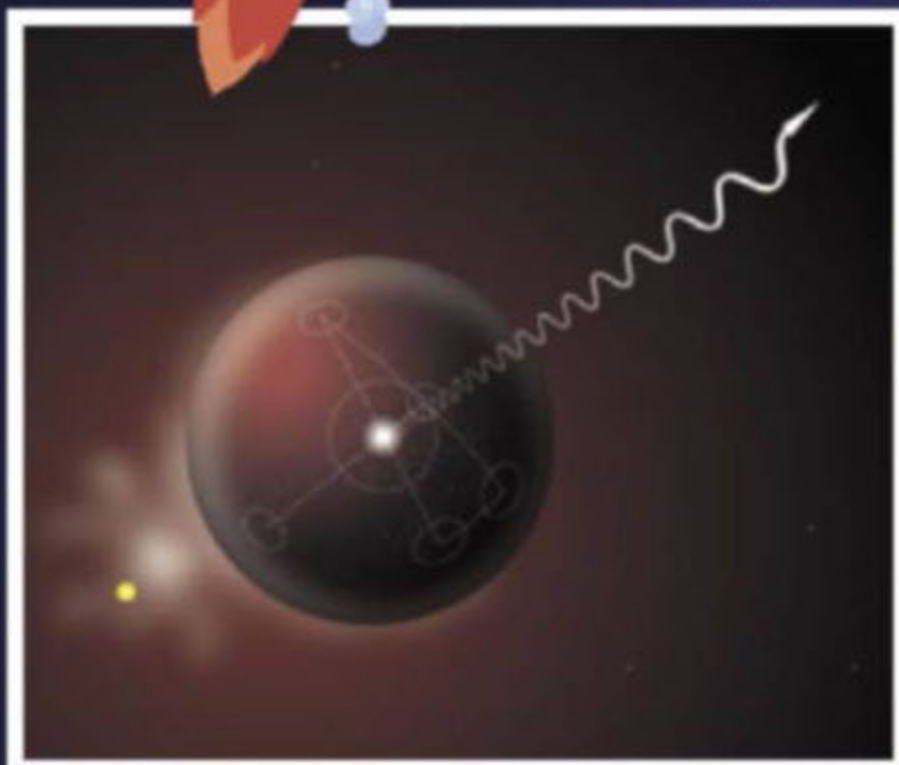


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WHAT WOULD HAPPEN IF ALIENS CONTACTED US?

Well, we're not quite sure what we'd say, for starters...



1. COULD WE DECODE IT?

Humans have only been transmitting radio signals for around 80 years and, already, we are phasing out AM and FM transmission systems in favour of digital signals. These are much easier to detect – but only if you know the encoding system. Without this key piece of information, any transmissions from an alien civilisation would just sound like background static.

2. COULD WE UNDERSTAND IT?

In 1974, we used a telescope to broadcast an image at the M13 star cluster. It contained details of our counting system, DNA structure and place in the solar system. But it's so difficult to understand that even other humans wouldn't be able to. An alien message might just be the same – so abstract that we could never understand what they are trying to tell us.

3. ARE THEY STILL THERE?

Even if we received and understood a message, its senders would probably be long gone. A 2018 study at the University of California found that, if civilisations last less than 100,000 years, the odds of detecting a signal while the transmitting civilisation still exists are almost zero. So, there's not much hope of sending, or receiving, a reply.



THE MYSTERY IN NEW MEXICO

In 1947 in Roswell, New Mexico, a rancher found a disc-shaped wreckage on his farm that consisted of rubber strips, tinfoil and thick paper. Stories soon began to circulate that it was a 'flying saucer', especially when the US Army seemed unable to get their story straight on what the wreck was from. The secrecy surrounding the crash site (named Area 51), and rumours about alien bodies being removed from it, made it a fantastic story for the newspapers. There have been many different explanations since, with one practical one saying that the government was testing a stealth (secret and quiet) listening device that crashed, and that the 'alien bodies' were parachute test dummies. But people love a good mystery, and Roswell will likely always be known as an 'alien' town. In fact, it has built its tourism industry on that, with flying saucer-themed restaurants and statues.



**DID YOU
KNOW?**

Quetzalcoatl (known to the Mayans as Kukulcan) was an important god in Mesoamerica. He is often depicted as half bird (*quetzal*) and half serpent (*coatl*), is said to have helped create mankind and was the Aztec god of air, wind and learning.



QUETZALCOATL'S NEST— ORGANIC ARCHITECTURE



**DID YOU
KNOW?**

Near Mexico City, you will find this curious, but beautiful series of residential apartments. Designed by architect Javier Senosiain, the complex aimed to have as little impact on the surrounding environment as possible.

The land was filled with caves and big trees and, instead of flattening everything, the designer worked around it. He used a natural cave to create a giant serpent head, modelled on Quetzalcoatl (an Aztec feathered serpent god) and carried on that theme throughout. People can now rent a unit, staying in one of the 10 apartments that are dotted along the snake's body.

While there, they can enjoy nature – as the surrounding land features a botanical garden, mineral caves and lakes.

Organic architecture is when the designer strives to create harmony between man and nature. Designs should be simple and look as if they belong in the surroundings. The term was first coined by architect Frank Lloyd Wright back in 1908, and it is a popular way of designing and building now.



THE PROBLEM WITH METHANE...

Methane levels in the atmosphere are on the rise. But why is that bad?

WORDS TO KNOW

- 🌱 **GREENHOUSE GAS** A gas that traps heat in the atmosphere, warming the atmosphere.
- 🌱 **EMISSIONS** The production and discharge of something, especially gas or radiation.
- 🌱 **NATURAL GAS** A type of fossil fuel (mostly consisting of methane gas) formed from the remains of plants and animals. Other fossil fuels include petroleum and coal.
- 🌱 **CARBON FOOTPRINT** A measure of the impact our activities have on the environment in units of carbon dioxide.

WHAT IS THE PROBLEM?

Between 2000 and 2017, levels of the potent greenhouse gas, methane, rose so much that climate models are predicting between 3 and 4°C warming before the end of this century. Researchers at Stanford University found that the increases are mainly coming from the growth of emissions from coal mining, oil and natural gas production, cattle and sheep farming and landfills. All of this could lead to an increase in natural disasters, including wildfires, droughts and floods.

WHAT IS METHANE?

You can't see or smell it, but it is 28 times more powerful than carbon dioxide at trapping heat. In 2017, Earth's atmosphere absorbed almost 600 million tonnes of methane – a 9% rise since the early 2000s. More than half of all these emissions were from human activities, like the burning of fossil fuels and agriculture. The amount of extra methane since 2000 equates to putting 350 million more cars on the road, the researchers say.





HOW DO WE HELP?

Rob Jackson, professor of Earth system science at Stanford University, says that emissions from cattle are playing a huge role. "People joke about burping cows without realising how big the source really is," he says. "We'll need to eat less meat and reduce emissions associated with cattle and rice farming, and replace oil and natural gas in our cars and homes."

DID YOU KNOW?

Even if we stopped all human-related emissions overnight, it could take decades for the effect on the climate to be seen. That is why we need long-term commitment.

WHICH MILK IS BEST FOR THE ENVIRONMENT?

If cows are producing tonnes of methane, it goes without saying that cow's milk isn't the 'greenest' type you could drink. In fact, it has by far the highest carbon emissions and water use and uses 11 times more land than other milks. A team at Oxford University examined five types of milk in 2018. They found that rice milk has the second-highest carbon footprint, while almond milk has the lowest. But almond milk does use a lot of water. Soy and oat milk are slightly higher in carbon emissions, but use far less water.



CARBON SOLUTION

Restoring degraded natural habitats in the UK could absorb a third of the country's CO₂ emissions, a report says.

LOW-CARBON RIDE

A California-based study found that replacing regular taxis with electric ones would reduce carbon emissions three times more than replacing private petrol vehicles with electric ones.



INSPIRED EXPIRED



COCO HAZARD

Coconut oil farming is terrible for the environment. It threatens many unique species, as coconut trees are mainly grown on tropical islands. A study found that it was worse than palm, olive and soybean production.

DID YOU KNOW?

Rising shipping is also a threat to sea life. For more, turn to page 18.

ARCTIC SPILL

Rising shipping in the Arctic poses a risk to human safety and the environment, including oil spills, says a new report to the Nordic Council.



TEST YOURSELF

Train your brain by challenging yourself with these tricky puzzles



Four pages of puzzles and activities to keep you busy!

DOUBLE PUZZLE

Unscramble the words, then use the numbered blocks to decode a hidden phrase.

HLPIDNO

--	--	--	--	--	--	--	--

BAEWLELUH

--	--	--	--	--	--	--	--	--	--

HLSFIJELY

--	--	--	--	--	--	--	--	--	--

TUPSOCO

--	--	--	--	--	--	--	--

YAANTRAM

--	--	--	--	--	--	--	--

RAKSH

--	--	--	--	--	--

SLEA

--	--	--	--	--

--	--	--

--	--	--	--	--	--	--	--	--	--	--	--

MATHS SQUARE

Fill in the missing numbers. The missing values are whole numbers between 1 and 9. Each number is only used once. Each row is a maths equation. Each column is a maths equation. Remember that multiplication and division are performed before addition and subtraction.

5	-	1	+		12
+		+		×	
	+		+	4	20
×		-		-	
6	×		-	2	16
47		7		30	



CRYPTOGRAM

Decode the message. Each letter in the phrase has been replaced with a random letter or number.

HINT: It's about a special day we are celebrating this month.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
19				25								10		5	15										

A	P	P																							
22	19	15	15	8	10	5	14	22	25	7	12	3	19	8	14	5	19	17	17	5	18	7			



CROSSWORD

Make sure you've read the whole magazine before you complete this puzzle – the answers can be found in the articles.

ACROSS

4. A substance that can dissolve another.
6. The tallest mountain on Mars is _____ Mons.
12. The name given to a gas that traps heat in the atmosphere, warming it.
13. This human body organ weighs around 1.3-1.4kg.
14. This block-based game is the best-selling video game of all time.
15. The town in New Mexico where Area 51 can be found.
17. Clusters of the pigment melanin cause these on the skin.
19. This area of Bathurst is home to the world's tallest _____ building.
22. Amelia Earhart was the first woman to fly solo non-stop across this ocean.
24. This form of architecture creates harmony between man and nature.
25. The red-lipped _____ is a bottom-dwelling fish who looks like she's wearing lipstick.
28. The name given to small, manmade hills.
30. This was found 5,300m up the Aconcagua mountain.
31. The blue _____ is a type of sea slug, which is tiny with a powerful sting.

DOWN

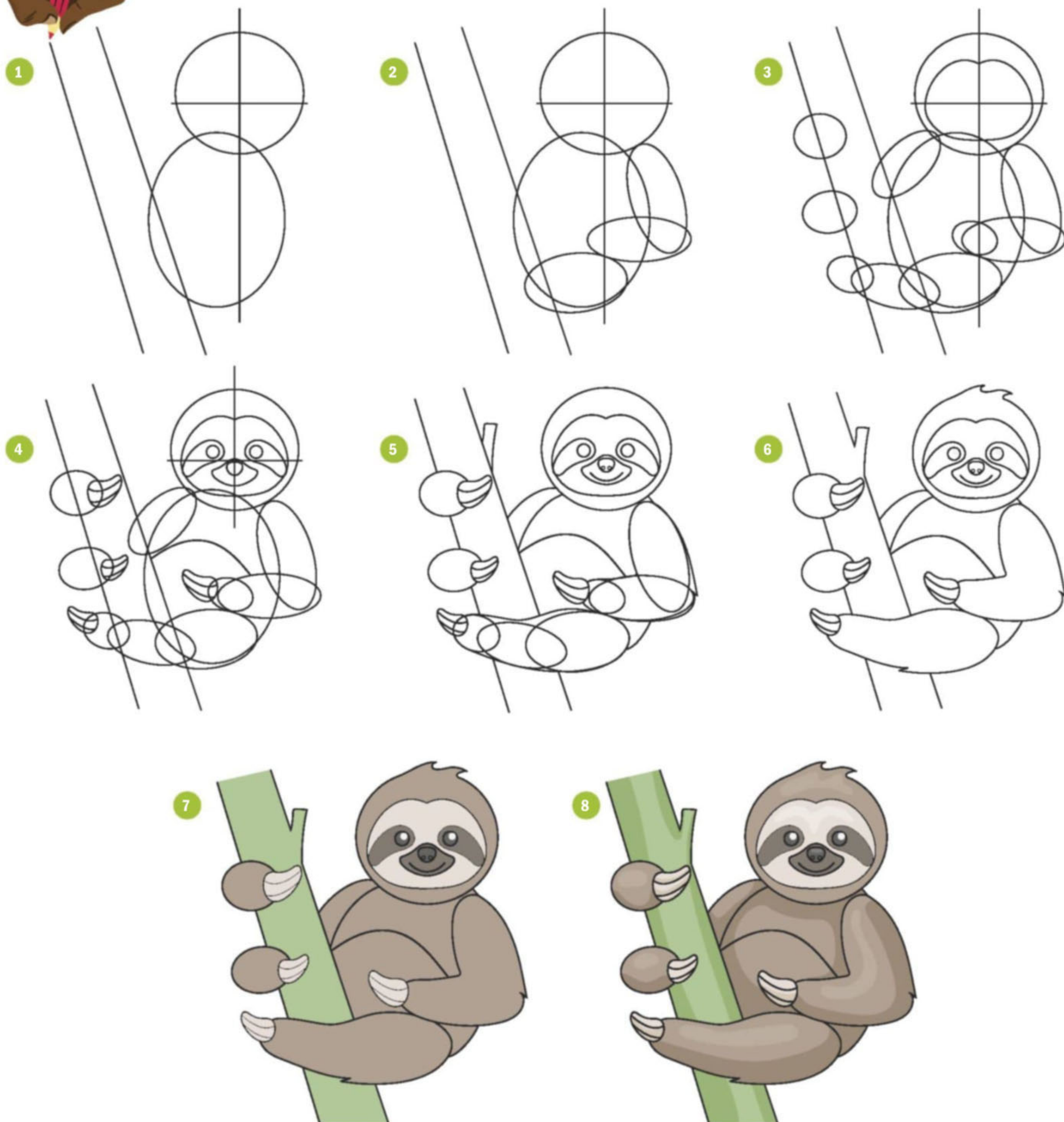
1. The name given to NASA's moon missions during which men walked on the moon.

2. A rock outcrop near Coffee Bay has a unique feature: the _____-in-the-Wall.
3. These animals burp methane – which is bad for the environment.
4. The Seven _____ is a mountain-climbing challenge.
5. A diverse group of dinosaurs who walked on two legs and who birds descended from.
7. This type of cloud looks a bit like a giant pancake and appears to stay still.
8. The wrecked ship that OceanGate is offering tours to go see.
9. The nickname given to Beijing Daxing Airport because of its shape.
10. Your carbon _____ measures your impact on the environment.
11. The _____ moth has the largest wingspan of any living insect.
16. This is your body's heaviest internal organ.
18. The language in which Tswana means 'place of salt'.
19. Wear a hat made of this in *Minecraft*, and the Endermen cannot attack you.
20. Quetzalcoatl was the _____ god of air, wind and learning.
21. Christopher Columbus saw a manatee and mistook it for this mythical creature.
23. Amelia Earhart nicknamed her yellow biplane after this bird.
26. The river in which a pilot had to land when geese flew into his plane's engine.
27. OR Tambo Airport uses these animals to clear wildlife from the runway.
29. Puncak Jaya translates as 'glorious _____' in Indonesian.



LEARN TO DRAW

Improve your art skills! Follow the steps and draw an adorable sloth



WEATHER WORDS

Fill in the blanks with the words ALL, ANT, BAR, BOW, CANE, CLONE, EAT, LAKE, LOG, LOUD, MET, METEOR, NOW, RAIN, RAT, SNOW, SOON, SURE, TEMP, UNDER and WIN to reveal 14 weather-related words.

[] X O X [] X Y
 H X [] X [] X D
 [] X ICY X []
 C X []
 [] X []
 S X [] X F X []
 [] X F X []
 MON X []
 PRES X []
 [] X E X [] X URE
 TH X []
 HURRI X []
 [] X O X [] X ER

Puzzle

MAKING WORDS

Take a letter from each test tube and make a word. Each letter can only be used once.
HINT: All the words are types of birds.



Test tubes containing letters: B, G, E, C, S; O, R, I, G, T; R, O, A, O, R; E, N, R, D, S; S, E, T, K.
 Grid for BIRDS:

B	I	R	D	S

HAPPY MONTHS DAY TO ALL OUR
 19 13 16 3 25 24 9 22 26 6 21 17 10 23 5 15 20 7 12 14 18 2 11 4 8 1
 A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

CRYPTOGRAM

	47	7	30
6	X	3	-
16			
20	7	+	9
	+		
12	5	-	1

MATHS SQUARE

GOOSE, EGRET, CRANE, STORK

MAKING WORDS

BAR X O X MET X ER
 HURRI X CANE
 TH X UNDER
 TEMP X E X RAT X URE
 PRES X SURE
 MON X SOON
 SNOW X F X LAKE
 S X NOW X F X ALL
 RAIN X BOW
 C X LOUD
 ANT X ICY X CLONE
 H X EAT X WIN X D
 METEOR X O X LOG X Y

WEATHER WORDS

SOLUTIONS

CROSSWORD

Across: 1. HURRI, 2. CANE, 3. UNDER, 4. TEMP, 5. RAT, 6. URE, 7. PRES, 8. SURE, 9. MON, 10. SOON, 11. SNOW, 12. F, 13. LAKE, 14. S, 15. NOW, 16. F, 17. ALL, 18. RAIN, 19. BOW, 20. C, 21. LOUD, 22. ANT, 23. ICY, 24. CLONE, 25. H, 26. EAT, 27. WIN, 28. D, 29. METEOR, 30. O, 31. LOG, 32. Y.

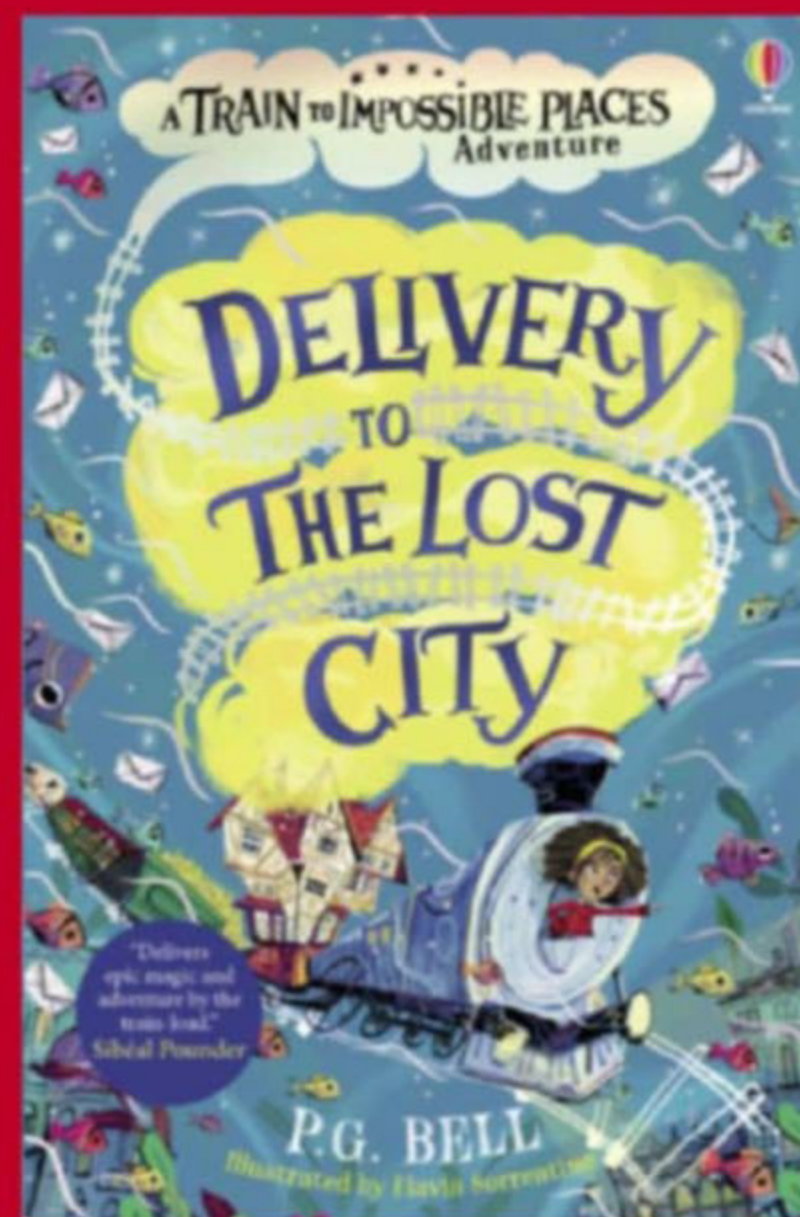
CROSSWORD

Totally trending

THE COOLEST STUFF OUT THERE

DON'T FORGET!

It's time to celebrate what an amazing woman your mom is! So, on Sunday, 9 May, show her lots of love!



BOOK – DELIVERY TO THE LOST CITY

When the Impossible Postal Express magically arrives to collect Suzy, she sets off on her most difficult delivery yet. A mysterious talking book is stealing words and causing chaos across the whole of the Impossible Places! The book must be returned to a city that's been lost for thousands of years. But, without a map to get there, Suzy and Wilmot's journey plunges them into grave danger, deep beneath the ocean. And with time running out, it might not just be the knowledge in the Impossible Places that is lost forever – Suzy and Wilmot could be too...

QUOTE OF THE MONTH

Be your own kind of beautiful

READER QUESTION

What is the most eaten food in the world?

Asked by Jackson du Toit



What people in each country eat differs according to which crops grow well, what is affordable and what is regionally popular. There is no one straight answer to this, so we looked at staple foods (the basic, usually starchy foods that form the base for meals, especially among lower-income populations).

There are two that stand out here – rice and corn/maize. Considering rice is regionally popular in the world's most populated countries (like Asia and Latin America), we'd say it comes out tops. But maize is also a staple food in Africa, North America and Europe. So, both are good possible answers.



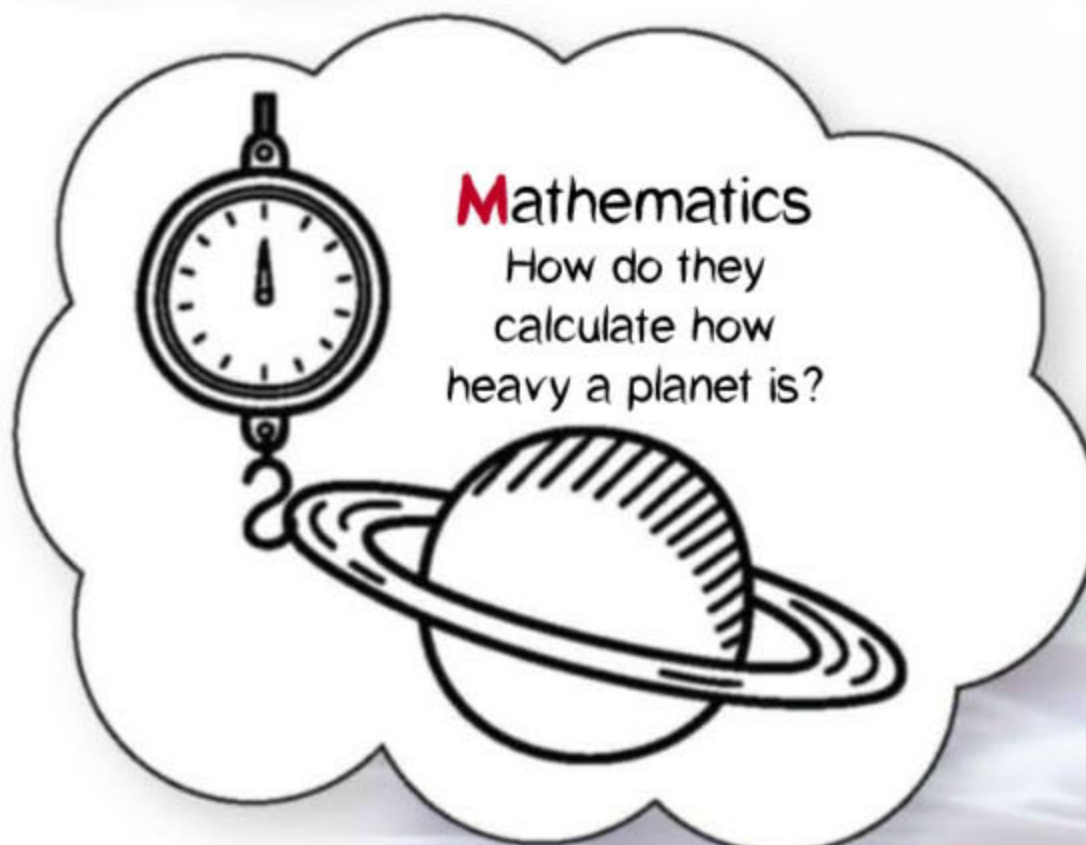
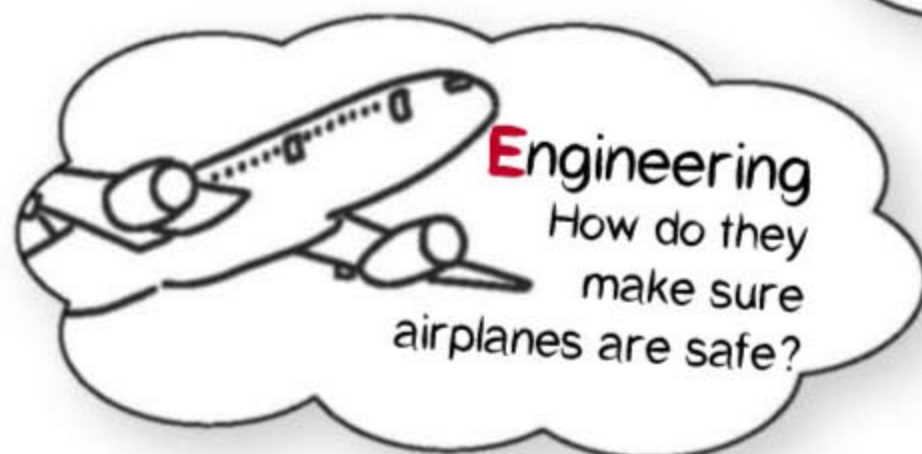
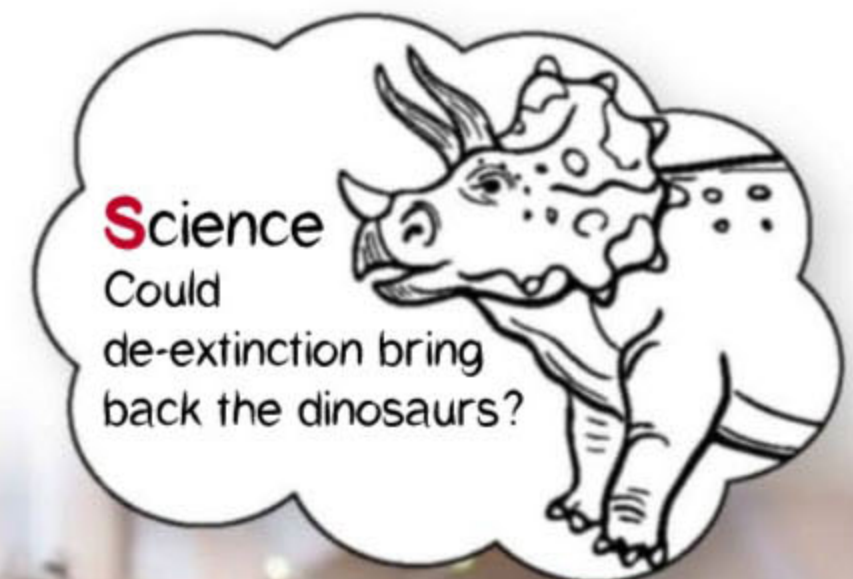
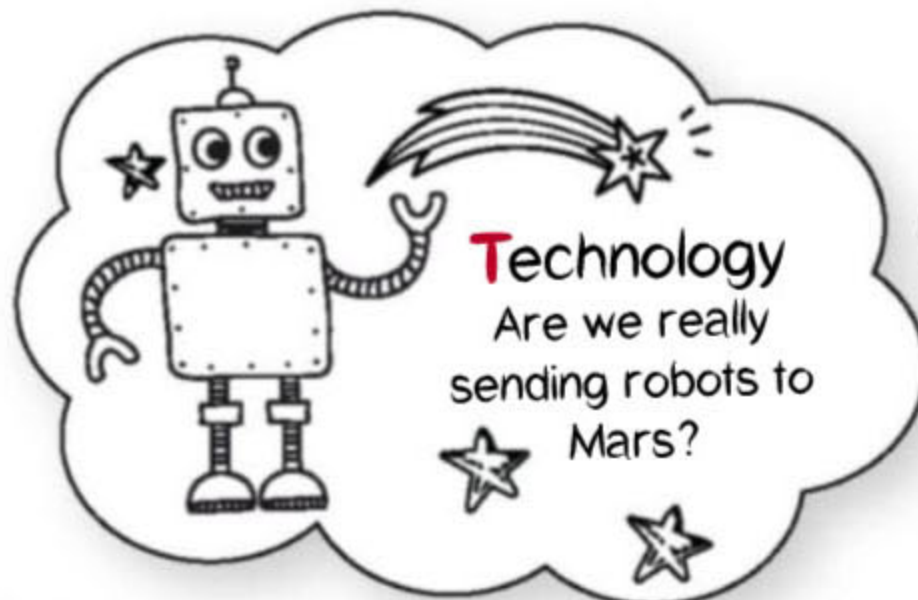
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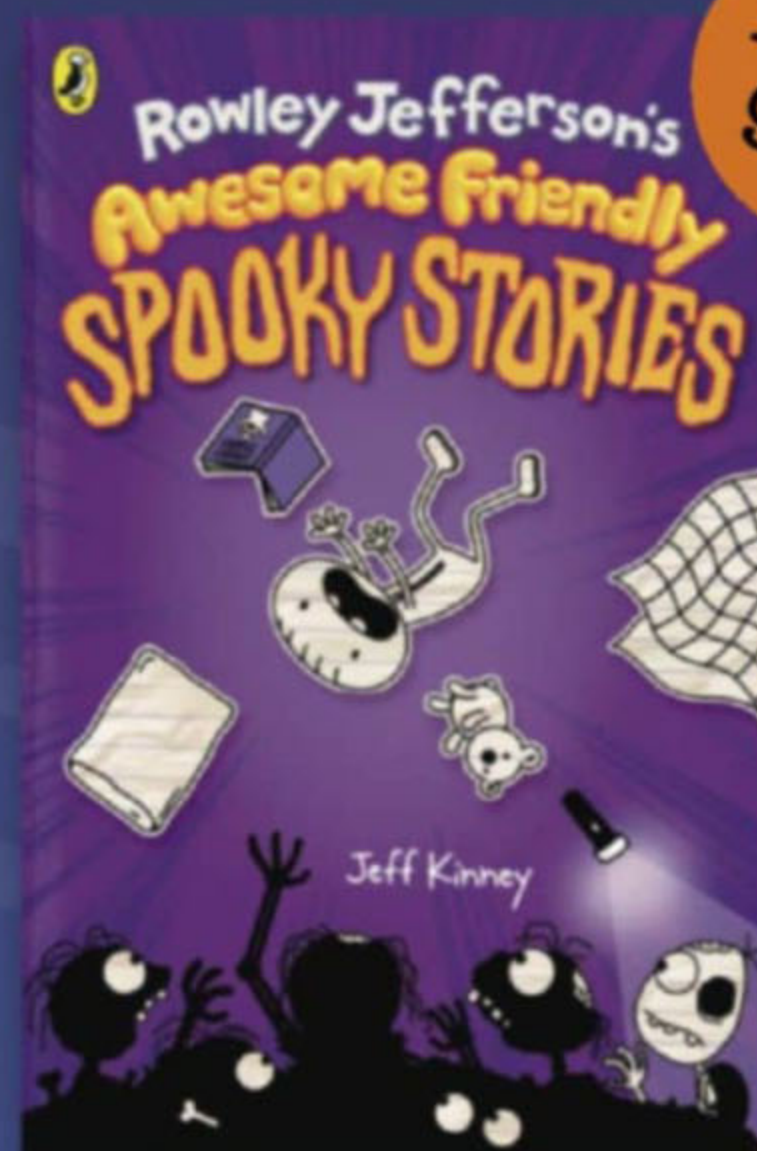
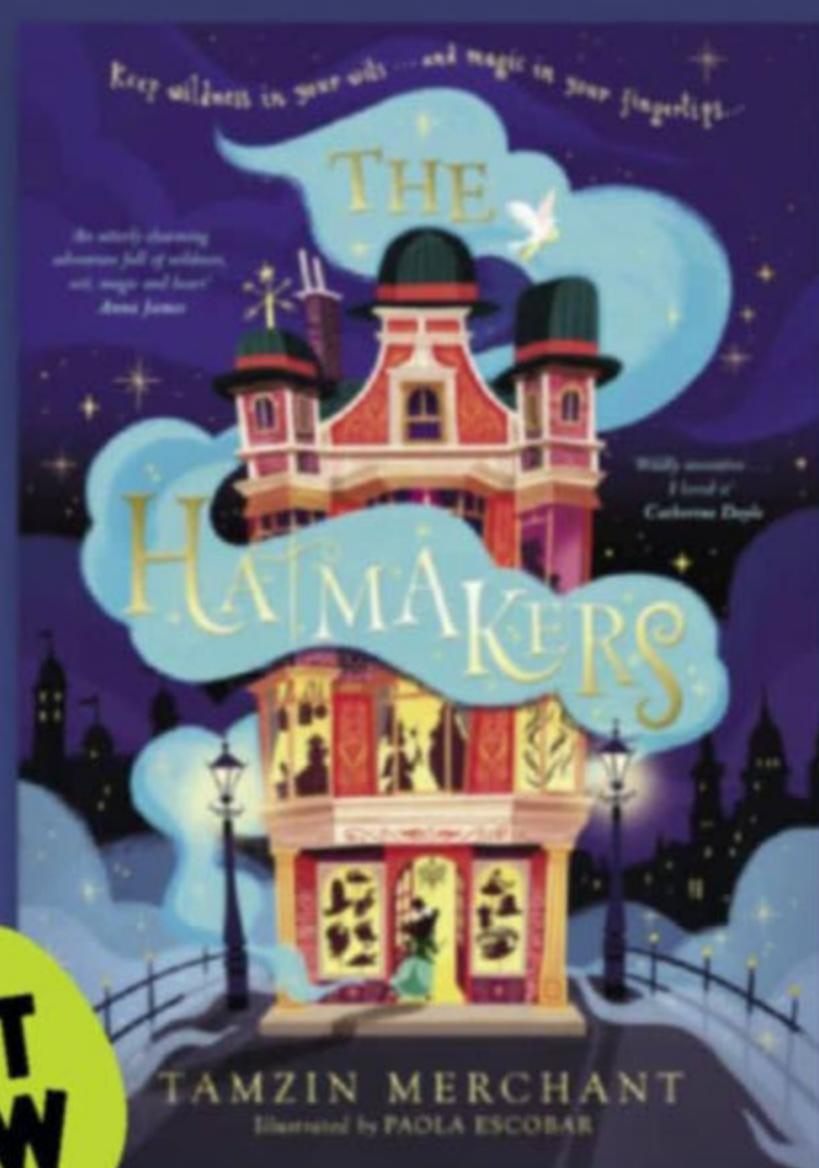
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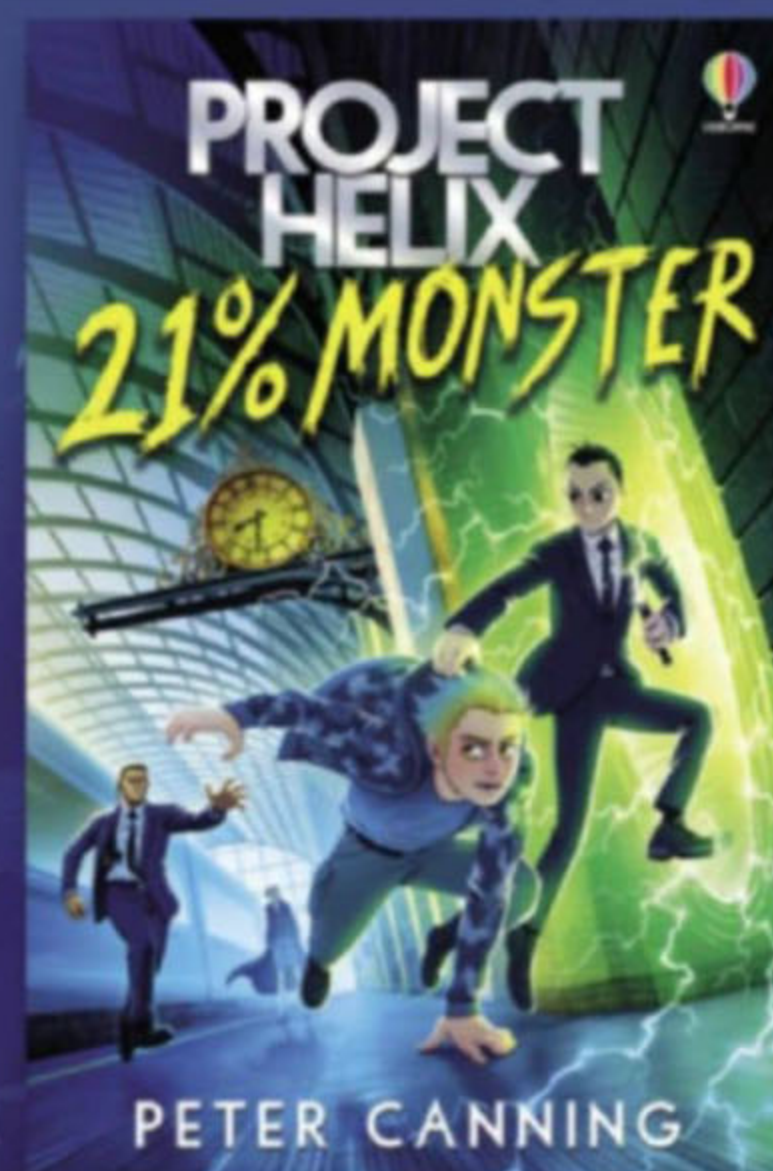
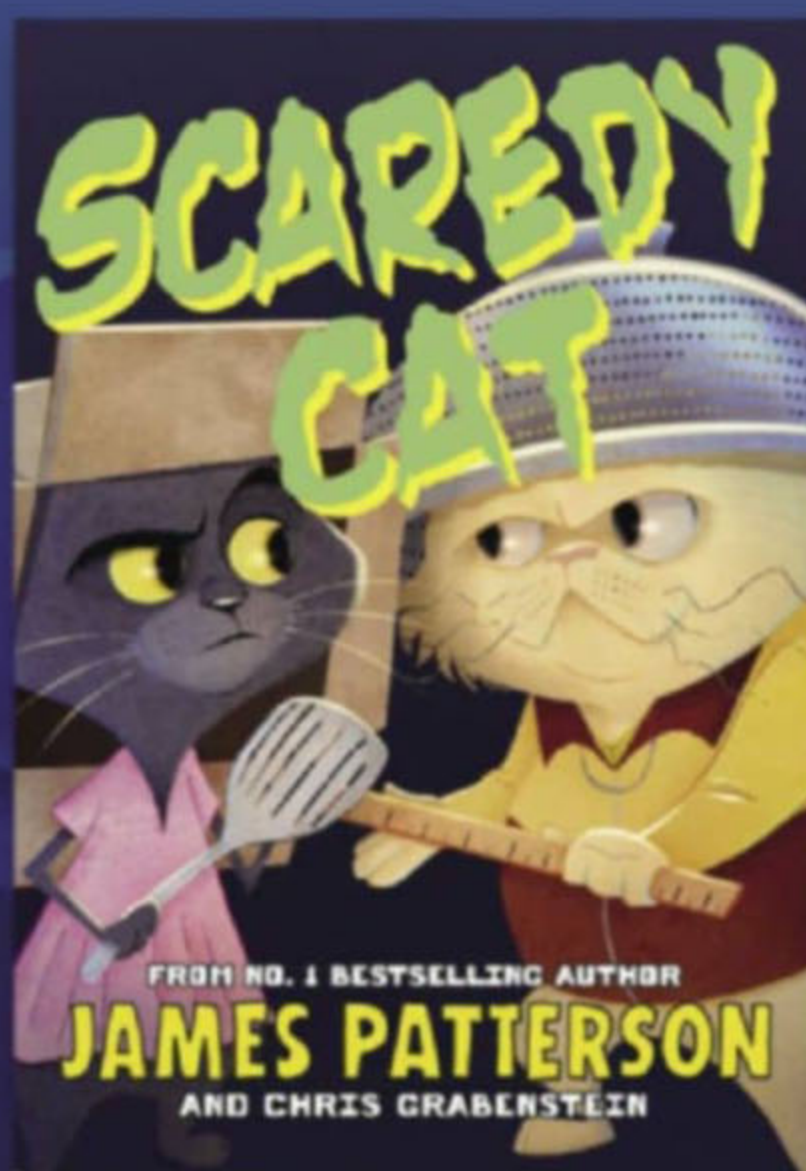
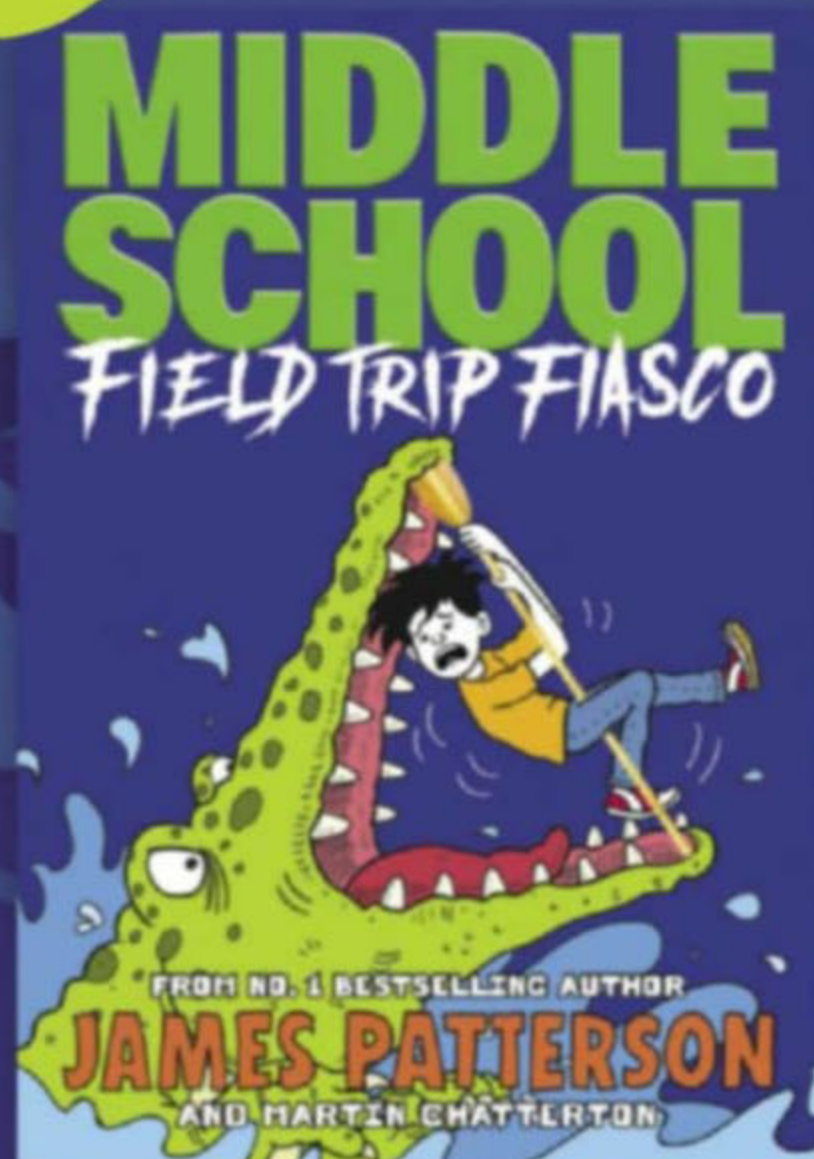
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