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The mag for curious kids
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Flying High with AMELIA EARHART
PUZZLES | SCIENCE | NATURE | ACTIVITIES | SPORTS | COMICS

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The mag for curious kids

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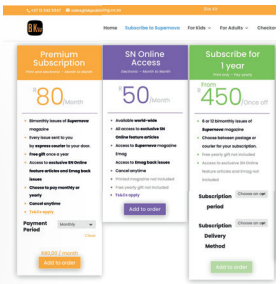

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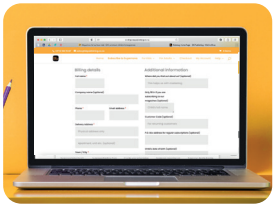

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Hi SuperKids

Candice

At this point, we're halfway through the year and the winter blues can feel like they are setting in. With short winter days and the cold keeping us indoors, it's perfectly normal at this time of the year to feel like you are lacking the motivation to do your best and dream big. So, in this issue, we have just the thing for you!

We're going to dive in and learn more about the amazing life of Amelia Earhart – the first woman to fly across the Atlantic Ocean. But, Amelia's story is not just about flying; it's about dreaming big and never giving up, no matter the obstacles. She shows us that with passion and perseverance, we can achieve great things. Whether it was her solo flight across the Atlantic or her mysterious disappearance over the Pacific, Amelia's life was a thrilling adventure that reminds us to always keep exploring and pushing the boundaries.

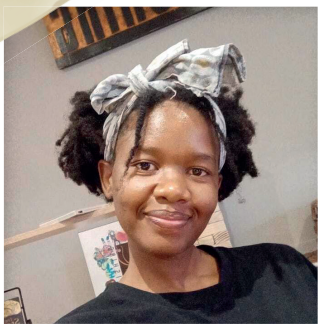
Learning about Amelia Earhart's achievements opened my eyes to how important it is to follow our dreams and believe in ourselves – no matter what! Just like Amelia, each one of us has the potential to make a difference and leave a lasting impact on the world. So, let's take a page from her book and dare to soar high, even when the skies seem daunting!

Happy reading, and stay curious kids!

Maria's top picks in this issue!

Hey guys! These are my absolute top picks that you **HAVE** to check out in this new issue!

Taking a closer look at our coral reefs was amazing! Not only are they beautiful to look at, but they support so much marine life in the ocean!



Maria
Intern

I loved learning that Istanbul is in both Europe & Asia! In **Andy's Atlas** (page 17), we visited great attractions like the Grand Bazaar. It's no wonder this city is known as the city of timeless charm.

We have all heard of the 7 Natural Wonders of the World, but what about the 7 Wonders of the Ancient World in the **Photo Feed** (page 20)?

How awesome would it be to get a two-for-one deal to a city that has two continents?

Learning more about **The History Of** the kilometre (page 12) was so interesting! Who knew that it would be so widely used around the world today?

It was so exciting to discover that wireless charging is within our grasp in the **Tech Talk** (page 13)! Scientists and engineers are working hard to make this a reality.

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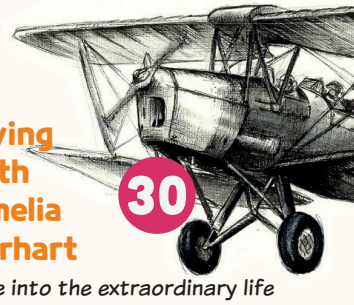
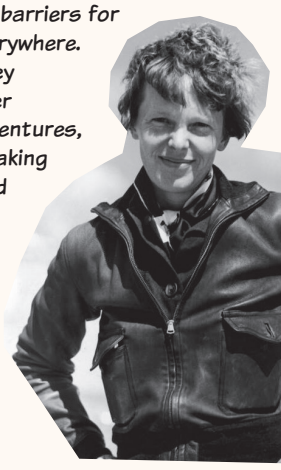
The Regulars

The Features



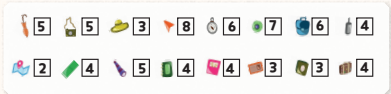


Answers for What'cha Reading, page 41:

1a. fringing reef
b. symbiosis
c. coral gardening
d. polyps

2a. calcium carbonate
b. rainforests of the sea
c. algae
d. poo

Answers for Brain Games, page 42:



Ask Jules?

Dustin (14) from Parkview asked us:

Why do we need to sleep?

Jules

Sleep is super important for keeping us healthy and happy! When we sleep, our bodies fix themselves, grow stronger, and get ready for a new day. Sleep also boosts our immune system, helps regulate our emotions, and gives us the energy and focus we need for the day. Without enough sleep, we can feel grumpy, find it hard to concentrate, and are more likely to get sick. Our brains do amazing things while we sleep, too! They organise everything we learned, and help us remember stuff better and solve problems. Sleep also keeps our hearts healthy and our hormones balanced, which means we stay in a good mood and don't feel super hungry all the time. Plus, getting enough sleep can help us grow tall and strong!

To get the best sleep, try to go to bed and wake up at the same time every day, even on weekends. Create a cosy bedtime routine with activities like reading or listening to calm music, and avoid screens before bed. Remember, good sleep is just as important as eating healthy and playing outside! So, sleep tight and wake up ready for adventure!

Super Art from our readers

Digital drawing of an owl - Hannah Knox (8)

Photograph from her trip to Istanbul - Chanel Roux

Our *Supernova* readers are ultra-talented, cool kids with vibrant imaginations and lots of inspiration! From beautiful drawings and imaginative paintings, to inspiring poems and captivating short stories, our *Supernova* community brings so much colour and excitement to our magazine, and we love sharing all about them!

Seeing your fantastic work inspires us, and we want to see even more!

If you have a masterpiece that you're proud of, we'd love for you to send it our way. Whether it's a whimsical doodle, a detailed masterpiece, a touching poem, or an adventurous tale, we want to celebrate your creativity. Your masterpiece could be featured in our next issue for everyone to enjoy and admire!

Email us at **supernova@bkpublishing.co.za**, and tell us what inspires you!

Long distance travellers

Photo: Aleksey Karpenko

European bee-eater

Migrating birds from South Africa can travel thousands of kilometres to reach Europe, crossing deserts, mountains, and oceans along the way.

Some species, like the European bee-eater, can cover up to 11 000 kilometres in their annual migration journey! This incredible feat showcases the remarkable endurance and navigational skills of these birds as they make their way to their breeding grounds in Europe.

Get this!

The Arctic Tern holds the record, flying about 40 000km between the Arctic and Antarctica every year!

Get this!

Birds have amazing navigation skills. They use the sun, stars, Earth's magnetic field, and even their sense of smell to find their way during migration.

Creature FEATURE

Naked mole rats are some of the coolest animals around! These pink, nearly bald rodents live in subterranean burrows and have a social system very similar to bees! Isn't that totally weird and wonderful?

Like many bees, ants, termites, and wasps, naked mole rats are eusocial. This means that they live in large colonies where only one female (the queen) and a select group of males are allowed to breed. The rest of the colony spend their whole lives as workers and soldiers, creating tunnels and protecting the colony from predators. They are the only mammal that lives in this way.

Naked mole rats are super tough—they can survive without oxygen for up to 18 minutes and are nearly immune to cancer! They live in dark, twisty tunnels that they dig with their sharp teeth, munching on roots and tubers they find.

Photo: Frans Lanting

Photo: Smithsonian National Zoo

Did you know?

Honey bees beat their wings 200 times per second!

Did you know?

Only 3% of the Earth's water is fresh!

The rest – 97% – is salt water.

So, salt water ecosystems are the largest on Earth, covering 70% of the Earth's surface!

Learn Your Local Languages

isiZulu edition

IZINKAWU ZIYASHADA
Meaning: When the sun shines while it rains

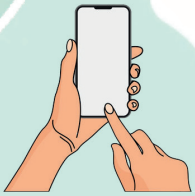
SALA KAHLE
Goodbye

NGIYABONGA!
Thank you!

NGIYACELA
Please

SAWUBONA, IGAMA LAMI NGINGU...
Hello, my name is...

UNJANI?
How are you doing?



UMAKHALEKHUKHWINI
Meaning: The thing that cries in the pocket (cellphone)

IKHIWANE ELIHLE LIGCWALA IZIBUNGU
Meaning: Beauty is skin-deep

INYANGA INYANGA
Meaning: moon/month

UKUBONA KANYE UKUBONA KABILI
Meaning: Once bitten, twice shy

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The BIG Picture

Polar Bear

Photo by Hans-Jurgen Mager

Polar bears are fascinating creatures and the undisputed kings of the Arctic! These majestic animals are perfectly adapted to their icy environment. Their thick layer of blubber and dense fur keep them warm in freezing temperatures, while their large paws help them walk on ice and swim in the cold waters. They can swim for long distances – sometimes over 100km without stopping! They have an incredible sense of smell, allowing them to detect seals, their main prey, from nearly a kilometre away. Because they spend most of their lives on the sea ice of the Arctic Ocean and depend on the ocean for their food and habitat, polar bears are the only bear species to be considered marine mammals. But, as global temperatures rise, the sea ice they depend on for hunting and breeding is melting, putting their survival at risk.

Get to know the Composers

Bob Marley

The voice of reggae and peace

Bob Marley was born on the 6th of February, 1945, in a small village called Nine Mile, in Jamaica.

His full name was Robert Nesta Marley.

Growing up, Bob was surrounded by music, and he started playing the guitar and singing at a young age.

In the 1960s, Bob Marley formed a band called "The Wailers" with his friends. They played a new style of music called reggae, which had a cool, laid-back beat and soulful lyrics.

Bob's powerful voice and catchy songs quickly made The Wailers famous in Jamaica.

Bob Marley and The Wailers released many hit songs that you might have heard, like "One Love", "No Woman, No Cry", and "Buffalo Soldier".

Bob Marley believed in peace and love for all people, no matter where they came from. He used his music to spread messages of unity and to encourage everyone to live in harmony.

He was also a peace activist. In the 1970s, Jamaica was going through a tough time with lots of political unrest and violence. Bob used his music to bring people together and to call for peace.

In 1976, he organised a free concert called "Smile Jamaica" to help ease tensions between rival political groups. Just two days before the concert, there was an assassination attempt on his life. Bob was shot but survived.

Despite his injuries, he went on to perform at the concert, showing his incredible bravery and commitment to peace.

In 1978, Bob Marley was awarded *The United Nations Peace Medal of the Third World* for his courageous work fighting for peace and justice in Jamaica during a time of great political unrest.

In 1994, he was inducted into the Rock and Roll Hall of Fame.

Bob has two of the UK's most streamed albums from the 70s, 80s, and 90s.

In 1977, Bob began battling melanoma, a type of skin cancer, when he discovered a suspicious spot on his toe, which he first thought was a soccer injury.

Even after his tragic death at the age of 36, Bob Marley's music is still being appreciated and played to this day!

His music sales (and profits from other brands he created throughout his lifetime) make him the 11th highest-earning dead celebrity, according to Forbes Magazine.

BEDTIME RITUALS AROUND THE WORLD

You may have heard about one of the world's most famous sleeping rituals, the Spanish siesta – a short nap taken in the early afternoon, just after lunch. But did you know that lots of countries have their own unique sleeping traditions? Maybe tonight you'll try one or two!

Illustrations by Alexandra Botha-Green

In the chilly Scandinavian lands – like Norway, Sweden, and Denmark – it is very common to find babies sleeping outside in the snow! They are typically left in their prams outside of homes, cafés or restaurants while sleeping. The fresh air is believed to help them sleep better and stay healthy, and even make them happier and more energetic!

In Guatemala, bedtime is a little more magical! Here, people whisper their daily stresses and worries to tiny, colourful dolls before they go to sleep and place them under their pillows. These 'worry dolls' are handmade and decorated in traditional Mayan colours and fabrics, and help people unburden before bed. By morning, the dolls have magically taken their worries away, and they wake up feeling fresh and stress free.

What would your teacher say if you decided to take a nap at your desk during the afternoon slump? They probably wouldn't be impressed. But, in Japan, people catch 40 winks everywhere – in shops, restaurants, cafés and even on public transport! This act of falling asleep in public is known as 'inemuri', which means 'sleeping on duty'.

The History of the Kilometre

Words by Nicole Dean

Have you ever wondered why we measure distances in kilometres? The story of the kilometre is a fascinating journey through history, science, and the quest for precision in measurement. Let's take a trip back in time to uncover the origins and evolution of this essential unit of length.

The Metric System

The kilometre is a key part of the metric system, which was developed in France in the late 18th century. Before the metric system, there was a confusing range of units used for measuring length, which were different from country to country, and even from town to town! This lack of standardisation made trade, science, and everyday life quite complicated. In 1790, the French Academy of Sciences was tasked with creating a uniform system of measurement. The result was the metric system, introduced in 1795.

?! Get this!

The word 'metre' comes from the Greek word 'metron', which means measure.

?! Get this!

Over 95% of the world's population lives in countries that have adopted the metric system and use kilometres to measure distance.

The Foundation of the Kilometre

The metre is the foundation of the metric system. Initially, it was defined as one ten-millionth of the distance from the North Pole to the Equator, along a meridian through Paris. This definition was based on the Earth's circumference and was designed to be universal and logical. Once the metre was established, it was divided and multiplied to create other units of length. The kilometre, which means 'thousand metres', was one of these new units.

Km in Modern Life

The kilometre quickly became a convenient unit for measuring longer distances, such as those between cities or geographical features. In today's world, the kilometre is a vital part of daily life. It is used in road signs, maps, and navigation systems, making it easier to understand distances and travel efficiently. The kilometre is also crucial in scientific research, sports (like running and cycling races), and many other fields.

WIRELESS CHARGING

Words by Chanel Roux & Candice Robertson

Have you ever wished your gadgets could charge without the hassle of plugging them in? Now, we have wireless charging – without the need for cables or cords! This fantastic blend of science and convenience is making our lives easier and our gadgets more user-friendly.

WHAT IS WIRELESS CHARGING?

Wireless charging allows you to power your device without using a cable. Instead of plugging in your phone, tablet, or other gadget, you can simply place it on a special charging pad or stand. It's like a wireless handshake between the pad and your device, transferring energy without a physical connection!

Get this!

Believe it or not, some of the first gadgets to use wireless charging were electric toothbrushes!

HOW DOES IT WORK?

The magic behind wireless charging is called electromagnetic induction. Inside the charging pad, a coil of wire generates an electromagnetic field when electricity flows through it. Your device, like a smartphone, has a similar coil inside. When you place your device on the charging pad, the electromagnetic field transfers energy to the device's coil, which then charges its battery.

Get this!

Wireless charging can help reduce e-waste by eliminating the need for multiple charging cables and connectors.

THE FUTURE OF WIRELESS CHARGING

The future looks bright for wireless charging. Scientists and engineers are working on making it even more powerful and efficient. Imagine a world where entire rooms or even outdoor spaces have wireless charging zones, and you can charge your devices just by being nearby!

Get this!

Wireless charging isn't as new as you might think! The idea goes back over a century to a famous inventor named Nikola Tesla. In the late 1800s, Tesla demonstrated the ability to transfer electricity without wires.

Yacht stewardess

Hello, my name is Melindi!
I am adventurous and have a passion for exploring new cultures and backgrounds, which is why I love working as a stewardess on yachts!

What does a stewardess do?

A stewardess is in charge of making sure everything inside of the boat is clean, tidy, and looking great. It is also our job to make it the best experience for the guests onboard!

What do you do on a normal day?

My day consists of cleaning, setting the table in a creative and fun way, and serving the guests drinks, food and snacks. I also make sure their cabins are clean and tidy, steam their clothes, and make reservations for them at the best restaurants and nightlife venues. Basically, I ensure that all their needs are met and they are having the best experience aboard the yacht.

What is the best part of your job?

No day is ever the same! When working on yachts, you build amazing friendships with your coworkers. Working on a yacht is all about teamwork! You also get to see beautiful places all over the world from land and sea.

Do you need qualifications to do your job?

These are some qualifications you will need:

- Standards of Training Certification and Watchkeeping for Seafarers Certificate (STCW)
- Food Health & Safety Level Certificate
- Proficiency (ENG1)
- Proficiency in Designatied Security Duties Certificate (PDSD)

What are some challenges in your job?

You need to be prepared to work long hours! You need to be awake before and after the guests, to make sure everything is clean and prepared for their stay.

Melindi's advice

I would recommend this experience to anyone, whether it's for a career, or for a gap year. Your personal growth and perspective will forever be changed!

QUIZ NIGHT

Trivia, Tactics, and Tons of Fun

Words by Sinekhaya Fikeni

These fun-filled trivia sessions test your knowledge on movies, history, general knowledge or random trivia, and are a great way to have fun with friends and family!

You can find quiz nights on almost any topic you can think of – from Harry Potter and Marvel superheroes, to general knowledge and sports. Quiz nights have become all sorts of fun, and can include rounds of music, video clips, and sometimes even physical challenges! And with the rise of online platforms, you can now join a quiz night from the comfort of your own home!

Quiz nights are special and fun because they are all so different and unique! If you were thinking of joining or hosting a quiz night for your friends or family, check out some of these options:

- **Themed Quizzes**: These are quiz nights with a twist – they are usually planned to follow a specified theme! A whole evening dedicated to your favourite TV show, book series, or historical period makes the evening much more exciting.
- **General Knowledge**: If you like a mix of everything, general knowledge quizzes are perfect for you. These quizzes cover a wide range of topics, so you never know what the next question will be about! It could be geography, pop culture, science, or even bizarre facts.
- **Customised Quiz**: Hosting a special event or a birthday party? Customised quizzes are a fantastic way to make the occasion unique. You can tailor the questions based on family trivia, or even according to the interests of your guests!

Get this!

From apps like Kahoot to quizzes on BuzzFeed, you can participate from the comfort of your home!

Get this!

The roots of quiz night can be traced back to the UK in the 1970s – pub landlords would organise informal quizzes to attract customers during slow business hours!

Istanbul

The city of timeless charm

Words by Andrea Vermaak

I couldn't wait to catch up with my dear friend, Dilruba, in Turkey's largest city, Istanbul!

We visited a few great attractions (like the Hagia Sophia Grand Mosque, where I'm standing here) and I learnt so much about this historical city.

One city, two continents

Istanbul is in both Europe and Asia. The Bosporus Strait that runs through Istanbul is the boundary between the two continents.

From what we know, Megarians settlers from Greece, who founded the city, called it Byzantium around 657 BC. Its name changed to Constantinople when Constantine the Great (the first Christian Roman emperor) conquered the city in 324 AD. Turkey became a republic in 1923 and the city was officially renamed Istanbul in 1930.

We crossed the famous Bosphorus Bridge from Ortaköy (Europe) to Beylerbeyi (Asia). It was completed in 1973 and is the oldest suspension bridge of three that cross the strait in Istanbul.

Our first stop was to get a view from the top of the cylindrical Galata Tower. Built in 1348 as a watch tower, it has also been used as a prison, a supply warehouse and a fire observation point! It's now a museum and has been included in the UNESCO World Heritage Tentative List.

Hagia Sophia

Not far from the Basilica Cistern is the architectural marvel of Hagia Sophia Grand Mosque. The Eastern Roman Empire built this major historical and cultural site between 532 and 537 AD. There are 30 million gold tiles inside and it's flat dome is said to be an engineering feat at the time it was built. Hagia Sophia was used as a church until 1453, then as a mosque until 1935 and as a museum until 2020 when it became a mosque again.

Photo by MasterLu

From far above ground to underground, our next stop was the Basilica Cistern – a great palace water reservoir built in the 6th century. It has 336 columns and vaulted brick ceilings, and there are also two Medusa heads under two of the columns. Nobody knows why they're there...

You can't go to Istanbul without visiting the Grand Bazaar. It's the largest and one of the oldest covered markets in the world. It has 61 covered streets and over 4000 shops. It's a feast for the senses and a great experience of authentic Turkish culture.

The History of Your Favourite Toys

From fashion dolls to brain-busting puzzles, these toys have brought joy and creativity to millions of kids (and kids at heart) around the world.

Words by Sinekhaya Fikeni and Candice Robertson
Illustrations by Benoît Knox

The Fashion Queen

The world's most famous fashion doll, Barbie, was created by Ruth Handler in 1959. Ruth got the idea from watching her daughter play with paper dolls and wanted to create a 3D version. Barbie quickly became a sensation, with her stylish outfits and fantastic careers. From astronaut to doctor, Barbie has done it all!

?! Get this!

Barbie's full name is Barbara Millicent Roberts.

The Colourful Cuties

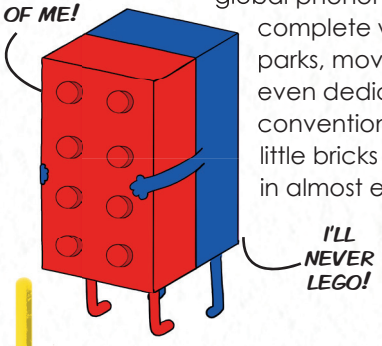
In the early 1960s, a Danish fisherman named Thomas Dam gave the world a quirky gift: the Troll doll. Born out of necessity (he couldn't afford a Christmas present for his daughter), Dam carved a funny, wild-haired wooden creature that quickly became a sensation. These charmingly ugly little dolls, took the world by storm! When the trolls were remade into plastic, they became an even bigger hit worldwide.

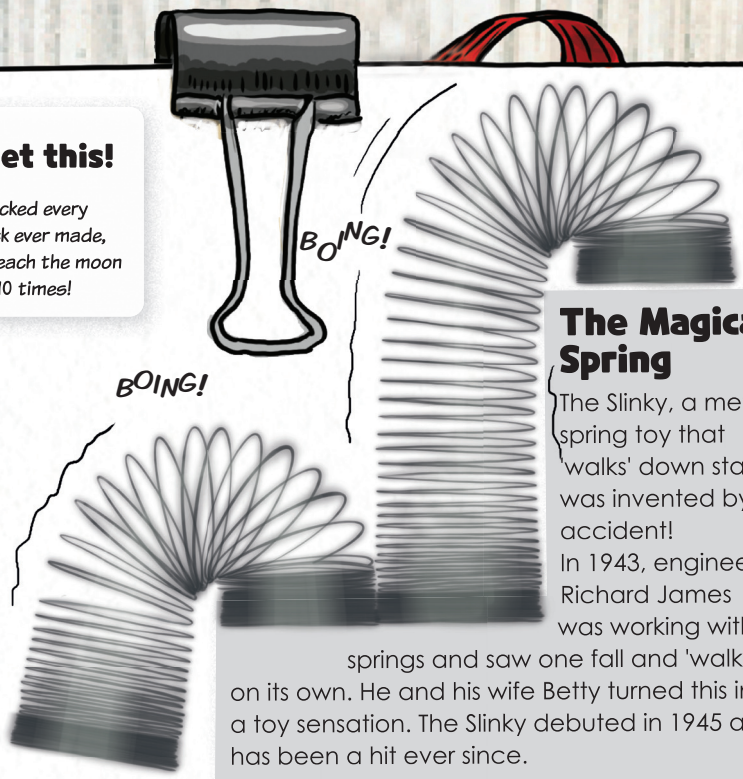
The Building Blocks of Fun

Get this!

If you stacked every LEGO brick ever made, it would reach the moon and back 10 times!

LEGO bricks were invented by Danish carpenter Ole Kirk Christiansen in 1932. Originally crafting wooden toys, LEGO switched to plastic bricks after a trip to a toy fair, and the rest is history. The word LEGO comes from the Danish words 'leg godt', meaning 'play well'. LEGO has grown into a global phenomenon, complete with theme parks, movies, and even dedicated fan conventions. Now, these little bricks can be found in almost every toy box.





The Magical Spring

The Slinky, a metal spring toy that 'walks' down stairs, was invented by accident! In 1943, engineer Richard James was working with springs and saw one fall and 'walk' on its own. He and his wife Betty turned this into a toy sensation. The Slinky debuted in 1945 and has been a hit ever since.

The Playground Classic

In the 1920s, a Chicago lawyer named Sebastian Hinton invented something that would change playgrounds forever: the Jungle Gym. Hinton's design looked like a maze of metal bars – perfect for climbing, hanging, and endless adventures! The Jungle Gym is found in playgrounds around the world, helping kids develop strength and coordination while having loads of fun.

The Spinning Sensation

Originally inspired by ancient hoop-rolling games, the modern Hula Hoop was reinvented by an Australian toy company called Wham-O. With its vibrant colours and rhythmic swaying motion, the Hula Hoop quickly became a sensation. Soon, everyone was having hula hoop contests, creating dance routines, and even including the toy in their fitness exercise.
From playgrounds to backyard parties, the hula hoop brings joy and laughter, encouraging playful competition and showcasing impressive skills.

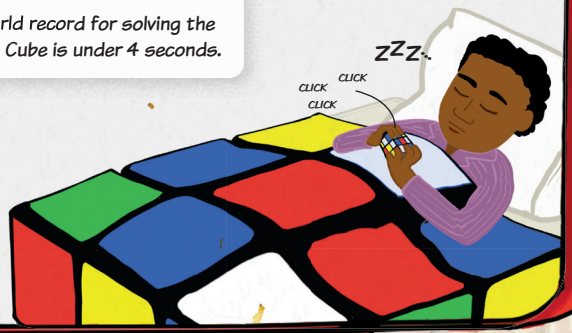
The Brain-Busting Puzzle

The Rubik's Cube, the colourful 3D puzzle, was invented by Hungarian architect Ernő Rubik in 1974. Originally called the 'Magic Cube', it became a worldwide sensation in the 1980s. The goal is to twist and turn the cube so that each side shows only one colour. With over 43 quintillion possible combinations, it's a challenging and addictive puzzle that has fascinated people for decades.

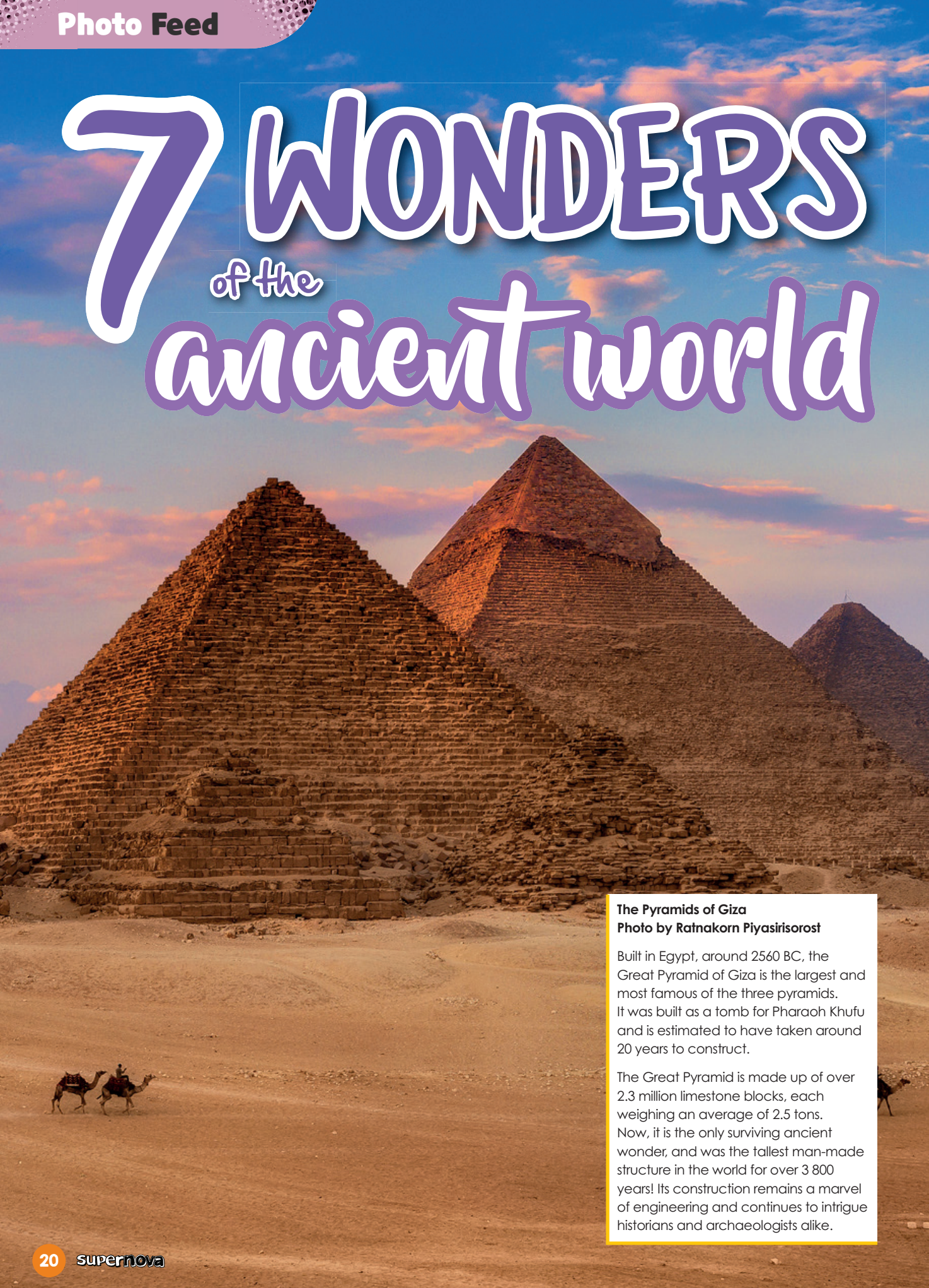
Get this!

The world record for solving the Rubik's Cube is under 4 seconds.

A RUBIK'S CUBE CHAMPION MUST EAT, BREATHE AND SLEEP THE CUBE!



7 WONDERS of the ancient world



The Pyramids of Giza
Photo by Ratnakorn Piyasirisorost

Built in Egypt, around 2560 BC, the Great Pyramid of Giza is the largest and most famous of the three pyramids. It was built as a tomb for Pharaoh Khufu and is estimated to have taken around 20 years to construct.

The Great Pyramid is made up of over 2.3 million limestone blocks, each weighing an average of 2.5 tons. Now, it is the only surviving ancient wonder, and was the tallest man-made structure in the world for over 3 800 years! Its construction remains a marvel of engineering and continues to intrigue historians and archaeologists alike.

Hanging Gardens of Babylon
Built around 605-562 BC, in ancient Mesoptamia


Photo by Midjourney

Said to be built by King Nebuchadnezzar II for his homesick wife, Amytis, these gardens supposedly had blooming flowers, luscious fruit, exotic foliage, and impressive waterfalls, making it a lush, green oasis in the desert. #PlantParents #HangingWithMyPlants

Temple of Artemis
Built in 6th century BC, in Ephesus, Turkey


Photo by Diego Delso

Built to honour Artemis, the Greek goddess of the hunt, this temple was rebuilt several times. It was famous for its grand size and 127 magnificent marble columns, each standing 18 metres tall! #ColumnGoals #MarbleMadness #TallTales

Statue of Zeus
Built in 5th century BC, in Greece


Photo by Yakov Oskanov

Standing tall and majestic, the massive statue of Zeus stood about 12 metres tall and was made of ivory and gold. It depicted Zeus sitting on an elaborate throne and was created by the sculptor Phidias. #MythicalMasperpiece #ZeusOnFleek

Mausoleum at Halicarnassus
Built in 4th century BC, in Turkey


Photo by Midjourney

This elaborate tomb was built for King Mausolus and was admired for its architectural beauty and splendour. Its design influenced many future architectural structures, earning it a lasting legacy in history. #TombRaider #GraveMistake

Colossus of Rhodes
Built in the 4th century BC, on the island of Rhodes

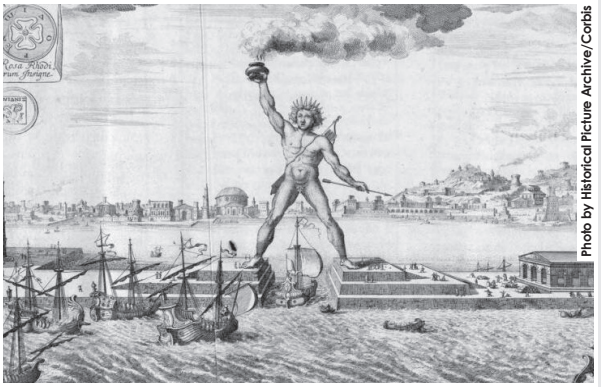


Photo by Historical Picture Archive/Corbis

Visitors to this island in the eastern Aegean Sea were greeted by a statue of the Greek sun god, Helios. After standing for only 56 years, an earthquake destroyed the statue. #GreekTragedy

Lighthouse of Alexandria
Built in 3rd century BC, in Egypt


Photo by Fischer von Erlach

Towering over the Mediterranean coast for over 1 500 years, the world's first lighthouse was one of the ancient world's tallest structures, and used mirrors to reflect sunlight miles out to sea.

Gliding Gecko

Photo by Lal Muansanga

In 2023, scientists discovered a new species of flying gecko, Gekko mizoramensis, in Mizoram state in northeast India. They use the wing-like flaps of skin on their legs and feet to glide through the forest, from tree to tree! Geckos are one of the oldest reptile groups still alive today, and flying geckos are an even more specialised bunch. Along with their webbed feet and flattened tail, their wing-like flaps of skin allow the geckos to steer while travelling in the air and land safely at their target. These skin flaps also help to break up their shape, acting as a camouflage against predators.

butterflies of South Africa

Words by Candice Robertson
Illustrations by Benoît Knox

?! Get this!

Butterflies have four wings — two fore wings and two hind wings.

?! Get this!

A group of butterflies is called a kaleidoscope.

Habitat

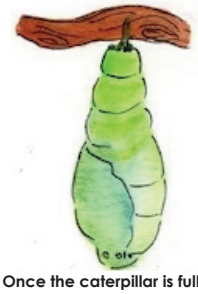
South African butterflies live in a variety of ecosystems. They can be found in lush forests, expansive grasslands, towering mountains, and even urban gardens. Some butterflies thrive in the warm, sunny coastal regions, while others prefer the cooler, high-altitude environments. These habitats provide the necessary resources for butterflies to find food, reproduce, and seek shelter from predators.

The Magical Metamorphosis

Butterflies undergo an extraordinary transformation called metamorphosis. This process has four distinct stages:

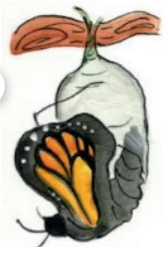
1 A butterfly lays eggs on a leaf or stem of a plant.

2 After a few days, the egg hatches into a caterpillar, who munches on plenty of leaves.



3 Once the caterpillar is fully grown, it wraps itself into a cocoon, called a chrysalis.

Inside, the caterpilar undergoes metamorphosis – it starts to change!



4 After a few weeks, an adult butterfly emerges from the chrysalis, ready to spread its wings.

The caterpillar transforms into a butterfly.

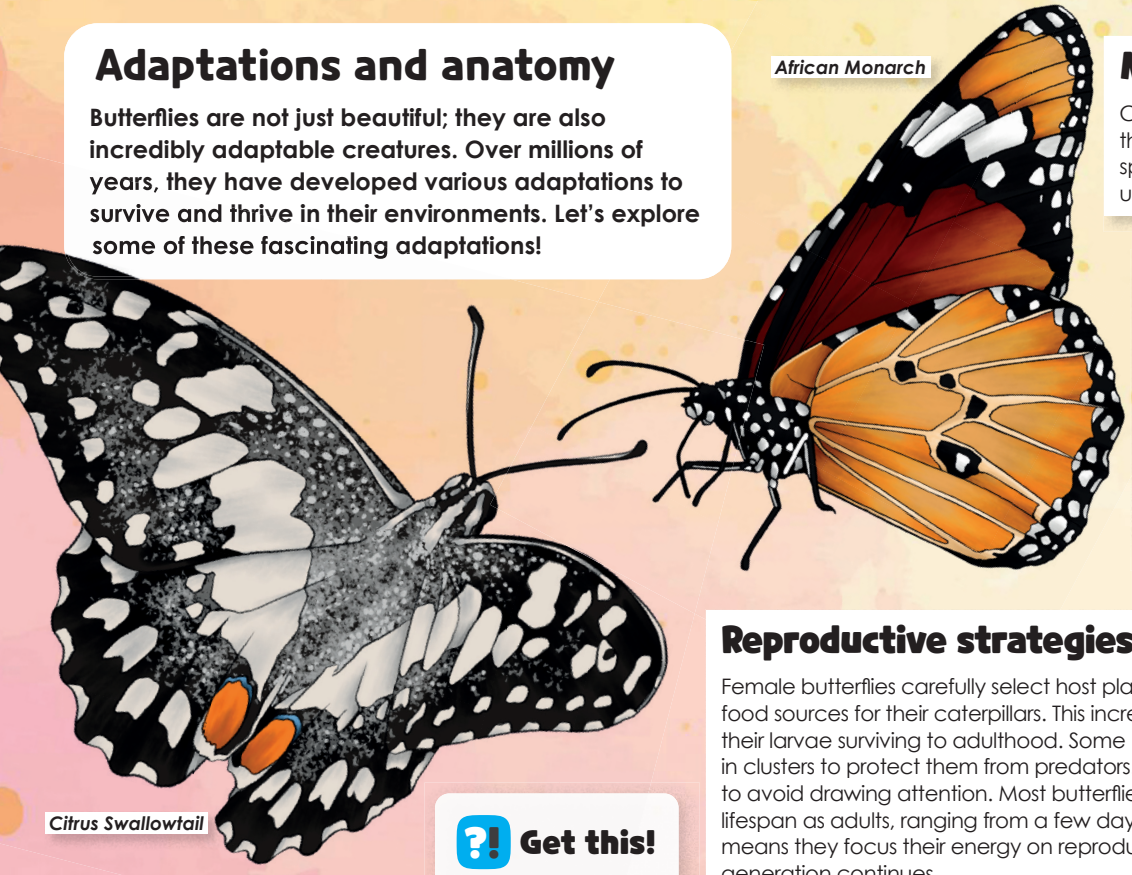
Diet

Butterflies have a fascinating diet! They mostly feed on nectar from flowers, which they sip using their long, tube-like tongues called proboscises. In addition to nectar, some butterflies enjoy fruit juices, tree sap, and the minerals found in mud puddles. Caterpillars, the larval stage of butterflies, have a different diet. They eagerly munch on the leaves and roots of native grasses and plants. These plants are crucial for their growth and development.

Nectar provides butterflies with the energy they need for flying and reproduction.

Adaptations and anatomy

Butterflies are not just beautiful; they are also incredibly adaptable creatures. Over millions of years, they have developed various adaptations to survive and thrive in their environments. Let's explore some of these fascinating adaptations!



African Monarch

Citrus Swallowtail

Mimicry

Certain butterflies mimic the appearance of other species that are toxic or unpalatable to predators.

Get this!

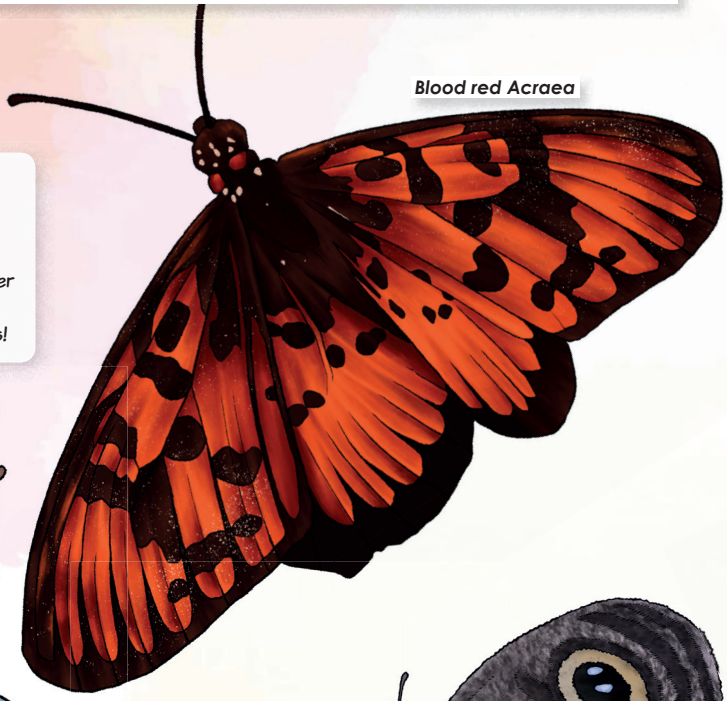
The African Monarch mimics the poisonous Monarch butterfly, deterring predators from eating it. This type of mimicry is called Batesian mimicry.

Reproductive strategies

Female butterflies carefully select host plants that provide the best food sources for their caterpillars. This increases the chances of their larvae surviving to adulthood. Some butterflies lay their eggs in clusters to protect them from predators. Others lay singly eggs to avoid drawing attention. Most butterflies have a relatively short lifespan as adults, ranging from a few days to a few weeks. This means they focus their energy on reproduction, ensuring the next generation continues.

Get this!

A female swallowtail can lay up to 400 eggs in her short life!



Blood red Acraea

Warning colours

Many butterflies have bright, bold colours and patterns that signal to predators that they are toxic or unpalatable. This is known as aposematism. Their toxins often come from the plants they consumed as caterpillars.

Get this!

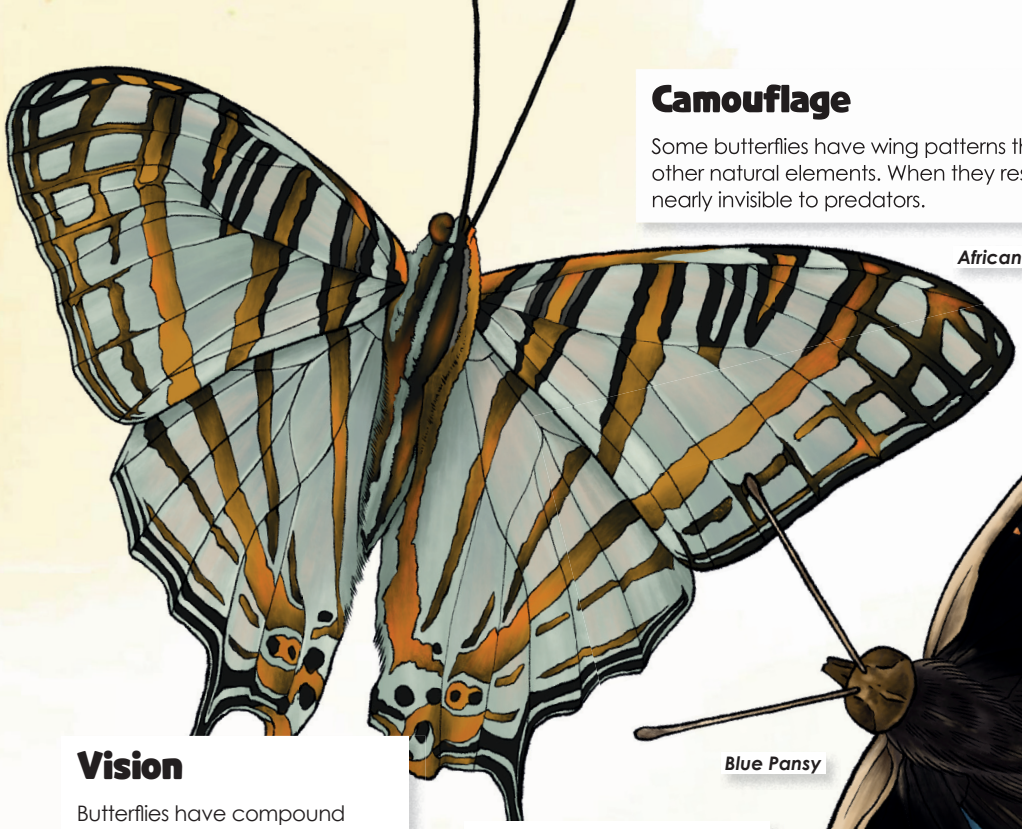
Acraea butterflies are known generally as bitter acraeas because they taste bad to predators!

Gaudy Commodore

African Ringlet

Camouflage

Some butterflies have wing patterns that resemble leaves, bark, or other natural elements. When they rest with their wings closed, they are nearly invisible to predators.



African Map Butterfly

Blue Pansy

Vision

Butterflies have compound eyes that allow them to see a wide range of colours, including ultraviolet light. This helps them locate flowers rich in nectar and identify potential mates.

Smell & taste

Butterflies have chemoreceptors on their antennae, feet, and mouthparts that help them detect scents and tastes. Female butterflies use these receptors to find suitable plants for laying eggs.

Get this!

Most butterflies cannot hear! Instead of communicating through sound, they communicate visually and chemically.

Get this!

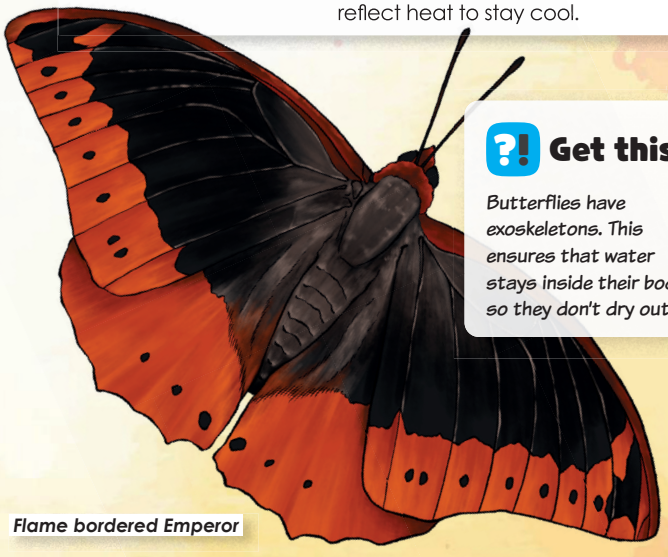
Butterflies are important pollinators. They pick up pollen on their legs, proboscis, or bodies and transfer it from flower to flower.

Thermoregulation

Butterflies are ectothermic, meaning they rely on external heat sources to control their body temperature. Butterflies often bask in the sun with their wings spread to absorb heat. This helps raise their body temperature to the level they need to fly. Dark-coloured butterflies can absorb heat more efficiently, while light-coloured butterflies reflect heat to stay cool.

Flight patterns

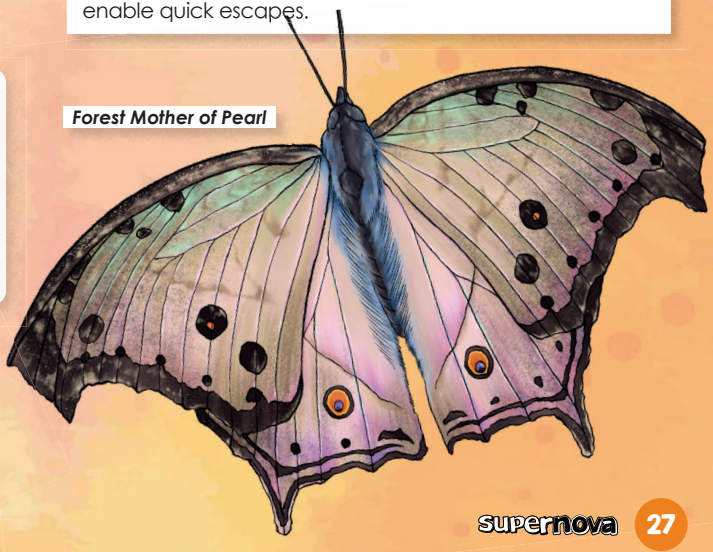
Butterflies have developed unique flight patterns to evade predators. Some butterflies fly in an erratic, unpredictable manner, making it difficult for predators to catch them. Others have rapid, powerful wing beats that enable quick escapes.



Flame bordered Emperor

Get this!

Butterflies have exoskeletons. This ensures that water stays inside their bodies so they don't dry out.



Forest Mother of Pearl

Why butterflies are important

Butterflies are essential to the ecosystem for several reasons.

They are important pollinators, transferring pollen from one flower to another as they feed. This process helps plants reproduce and produce fruits, vegetables, and seeds, contributing to biodiversity and food production.

Butterflies also serve as a food source for other animals, maintaining the balance of the food chain. Also, their presence indicates whether an environment is healthy or not, as they are sensitive to pollution and habitat changes.

Butterflies also use their antennae to smell.

Threats

Butterflies face numerous threats that endanger their populations. Habitat loss due to agriculture, deforestation, and urban development are major issues. Pesticides used in farming can poison butterflies and their caterpillars. Climate change also affects their habitats and the availability of food sources. Lastly, natural predators such as birds, spiders, and other insects pose constant threats to butterflies at every stage of their life cycle.

Birds mostly eat butterflies in their caterpillar form. The bird makes sure that it expels the caterpillar's gut contents that are potentially indigestible or toxic.

Make a Butterfly MOBILE

Have fun with paints, craft paper and ribbons and create a beautiful butterfly mobile! Now, you can watch as your butterflies gracefully flutter through the breeze.

Warning

Ask an adult if you need help with the scissors.

What you need:

- Coloured paper
- Pencils
- Scissors
- Paints & brushes
- Ribbon
- Glue
- Wire

Fold your paper in half, and draw the shape of half a butterfly along the fold.

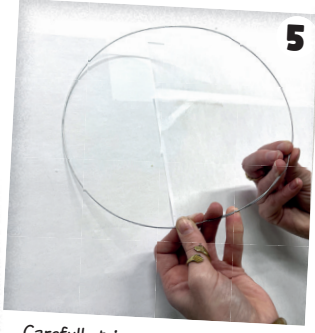
Carefully cut out your designs & make sure you have an even number of butterflies.

Decorate your butterflies using paint, colour pencils, glitter, etc!

Try this!

Create two of each design to complete your buttefly when the pieces are stuck together.

Attach a length of ribbon to the back of half the butterflies, and glue those with the same shape back-to-back.



Carefully trim a piece of wire and bend it into a circle. Ask an adult for help, as wire can be sharp!

Twist ribbon around the hoop, and then tie all of your butterflies' ribbons to the hoop. Make sure to space them evenly.

Hang your mobile up by a window and watch it flutter in the breeze!

Amelia Earhart

THE SKY'S THE LIMIT

Words by Euan Springfield

What would you do if you could fly anywhere in the world?

We all dream of going on crazy adventures and seeing all the amazing things the world has to offer. Well, for Amelia Earhart, going on these adventures was her whole life! Amelia was one of the most famous pilots in history, and wasn't just any pilot – she was a pioneering female aviator who inspired people all around the world! Her bravery and adventurous spirit showed that anyone, regardless of gender, could achieve their dreams.

?! Get this!

Amelia Earhart set her first aviation record in 1922, when she flew to an altitude of 4 200 metres!

HOW IT ALL BEGAN

Amelia was born on the 24th of July, 1897, in Kansas. She spent most of her childhood playing outside, hunting and exploring her environment with her younger sister, Muriel. She was curious about the world around her and this sparked her love for adventure and the outdoors! Her family were forced to move around a lot because of her father's job, and she used this as an opportunity to explore different places and grow her sense of adventure.

When Amelia was 10 years old, she saw her first airplane at a state fair in Iowa. It was a rusty old thing, and she wasn't very impressed. Although she didn't immediately begin her adventures as a pilot, this experience sparked her love of flying.

Amelia & Muriel in 1899

After graduating from high school in 1916, Amelia aspired to have a career in a male-dominated field, and kept a scrapbook of newspaper clippings about other women who had succeeded in fields such as engineering, management, law, and directing.

Amelia in an airplane

Amelia trained as a nurse and volunteered at a Canadian hospital during the First World War and the Spanish flu pandemic. In 1920, she attended an air fair and was able to ride in a plane with air racer Frank Hawks. From the moment the plane left the ground, she knew she had to learn to fly. With determination, Amelia saved up $1 000 for flying lessons by working various jobs. She finally learned to fly under the instruction of Neta Snook, one of the first female flight instructors.

Amelia & Neta Snook, the woman who taught her how to fly

?! Get this!

In 1923, Amelia became the 16th woman to receive a pilot's license.

SOARING TO NEW HEIGHTS

Amelia soon began setting records. On October 22nd, 1922, she flew her plane to 4 267 metres — the world altitude record for female pilots. And in 1932, Amelia became the first woman to fly solo across the Atlantic Ocean! The flight was incredibly challenging. She faced icy weather, mechanical problems, and exhaustion. Despite these obstacles, she landed safely in a field in Ireland after 15 hours and 18 minutes of flight. This achievement made her an international sensation.

After earning her pilot's license in 1921, Amelia bought her first plane, a bright yellow Kinner Airster that she nicknamed "The Canary".

"THE MOST EFFECTIVE WAY TO DO IT, IS TO DO IT!"

AMELIA EARHART

Amelia didn't stop there. In 1935, she became the first person to fly solo from Hawaii to California, a dangerous route that had claimed other pilots' lives. She continued to push boundaries, advocating for women in aviation and inspiring people everywhere to follow their dreams.

1921
Started flying lessons

1922
Set altitude record for female pilots

1928
Became the first woman to fly across the Atlantic as a passenger

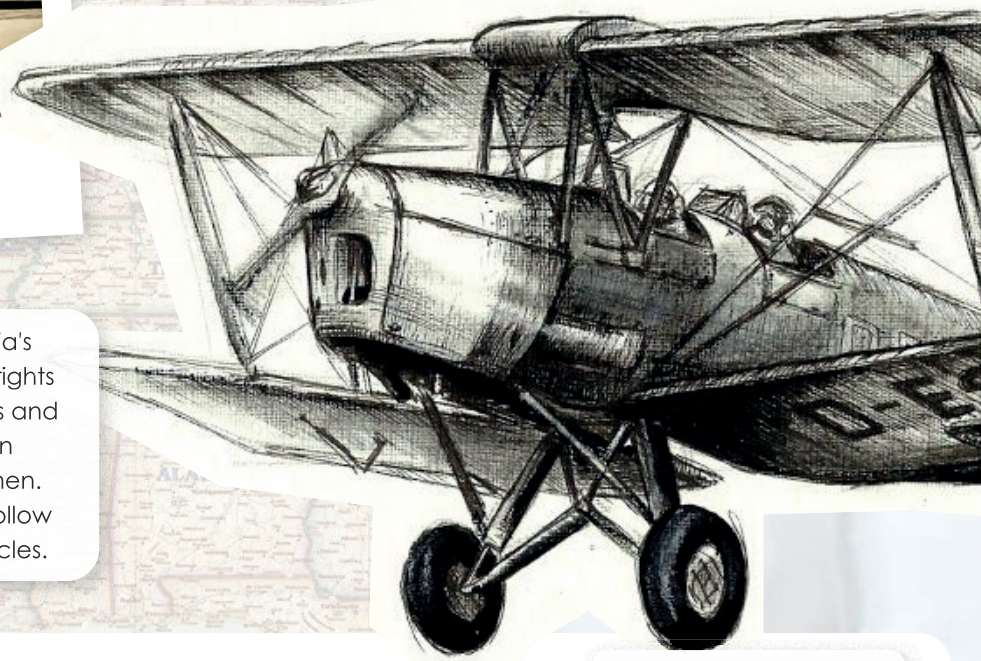
1932
First solo flight across the Atlantic

LAST FLIGHT & LEGACY

In 1937, Amelia set out on her most ambitious journey yet: to fly around the world. She and her navigator, Fred Noonan, departed from Miami and made several stops in South America, Africa, India, and Southeast Asia. They were on the final leg of their journey, heading to Howland Island in the Pacific Ocean, when they disappeared. Despite extensive search efforts, no trace of Amelia or her plane was ever found, leading to one of the greatest mysteries in aviation history.

Amelia before her last flight

Many theories exist about what happened to Amelia and Fred. Some believe they ran out of fuel and crashed into the ocean. Others think they might have landed on a deserted island. The mystery has sparked countless investigations and searches over the years.



Despite her mysterious end, Amelia's impact on aviation and women's rights is unforgettable. She broke barriers and showed that women could excel in fields traditionally dominated by men. She inspired countless people to follow their dreams, no matter the obstacles.

- First solo flight from Hawaii to California; Los Angeles to Mexico City; and Mexico City to Newark

Get this!

The Amelia Earhart Award is given by the Ninety-Nines, an international organization of female pilots, to recognize outstanding women in aviation.

1932

- Set women's non-stop transcontinental speed record

1935

1937

- Began flight around the world; first person to fly from the Red Sea to India

CORAL REEFS
UNDERWATER WONDERS

Words by Chanel Roux Layout by Megan Pluke

Imagine diving into a world filled with vibrant colours, bustling with life, and teeming with mysterious creatures. This is the world of coral reefs, one of the most fascinating and beautiful ecosystems on our planet. Coral reefs are underwater structures made up of tiny animals called corals. These reefs are not only breathtaking to look at but also incredibly important for the health of our oceans.

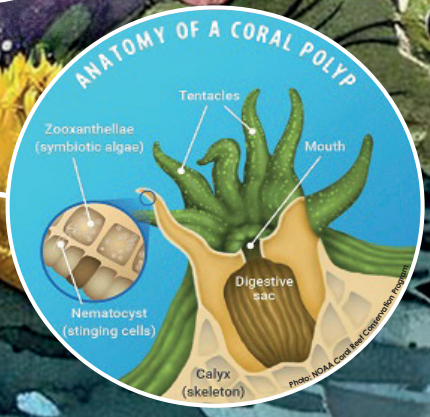
Coral reefs start off with tiny animals called polyps. These polyps are small, jelly-like creatures that build hard, protective shells from calcium carbonate.

When many polyps join together, they form a coral colony and use their tentacles to catch food. Over time, as the polyps die and new ones grow on top of the old skeletons, the reef structure gradually forms.

Coral reefs take thousands of years to form and grow very slowly, usually less than 3cm per year. Despite their slow growth, reefs can become incredibly large and complex, supporting a diverse range of marine life.

?! Get this!

Coral reefs are sometimes called the 'rainforests of the sea' because of their incredible biodiversity!



TYPES OF REEFS

There are three main types of coral reefs: fringing, barrier and atolls.

Get this!

The first coral reefs formed on Earth 240 million years ago. That's before the dinosaurs were alive!

Photo by Mark A. Wilson

Fringing reefs grow close to the shore, and are the most common type of reef. They look like underwater extensions of the land, and are found along the coasts of many tropical islands. They can act as a barrier that protects the coastline from erosion and storm damage.

Fringing reef

The Ningaloo Reef, Australia

The largest fringing reef in the world is the Ningaloo Reef, found along the western coast of Australia. Covering more than 250km, this reef supports an exceptional diversity of marine species.

Barrier reefs are located further from the shore, and create a barrier between the open sea and the coast. They help protect the coastline from strong waves and storms.

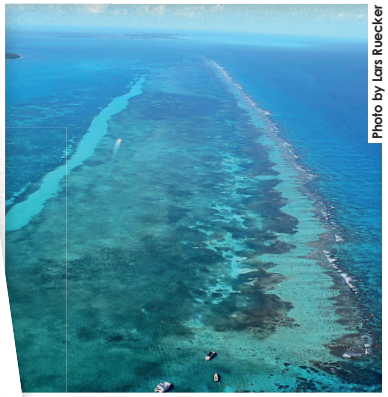


Photo by Lars Ruecker

Barrier Reef

The Great Barrier Reef is a famous example of a barrier reef. Located off the coast of Australia, it is also the largest coral reef system in the world! It stretches over 2 200km, and is visible from space!

The Great Barrier Reef, Australia

Atoll

Tubbataha Reefs National Park, Philippines

The Tubbataha Reefs Natural Park in the Philippines, which is a UNESCO World Heritage Site, is known for its pristine atoll reefs and abundant marine biodiversity.

Atolls are ring-shaped reefs that surround a lagoon, often around volcanic islands that have sunk into the ocean. As the island sinks, the coral continues to grow upward and forms a ring.

MEET THE RESIDENTS

Coral reefs are like underwater cities, bustling with life. They are home to over 4 000 species of fish, including clownfish, parrotfish, and angelfish. You'll also find all sorts of molluscs, like octopuses, snails, and clams, as well as crustaceans like crabs, shrimp, and lobsters. Even marine mammals like dolphins, whales, and manatees can be found in reefs! The reef provides this diverse range of animals with everything they need, including food and shelter.

Get this!

One of the most famous reef residents is the clownfish. These little fish live in sea anemones, which protect them with their stinging tentacles. In return, the clownfish clean the anemone and give it food. This symbiotic (shared) relationship is just one example of the intricate connections in coral reefs!

Parrotfish

Starfish

Sea turtle

Parrotfish are known for their vibrant colours, and use their beak-like teeth to nibble algae off of coral and keep the reef healthy. They also poop out sand, which helps build and maintain the structure of the reef.

Starfish feed on algae and some of the faster growing coral, which gives the slower growing species a chance to catch up, making our coral reefs more diverse.

Sea turtles help control populations of jellyfish and sea grass. They also digest nutrient-rich plant matter, and their poo gives back important nutrients like nitrogen and phosphorus to help the coral polyps grow.

Coral reefs are amazing, but they're in danger. Climate change is causing ocean temperatures to rise, which leads to coral bleaching. When the water gets too warm, corals expel the algae (*zooxanthellae*) living in their tissues, causing them to turn completely white. If the stress continues, the corals can die. Pollution, overfishing, and destructive fishing practices also harm reefs.

But there's hope! People around the world are working to protect and restore coral reefs. Having marine protected areas helps keep important reef habitats safe. These efforts can help reefs recover and thrive once again.

Photo by Alexis Rosenfeld

Scientists are also developing techniques like coral gardening, where they grow healthy corals and transplant them to damaged reefs.

Make edible Sugar Coral

Aren't corals beautiful? Well, now they can be tasty too! In this craft we'll teach you how to make edible sugar coral, a nice tasty treat and beautiful craft to bedazzle all your friends with.

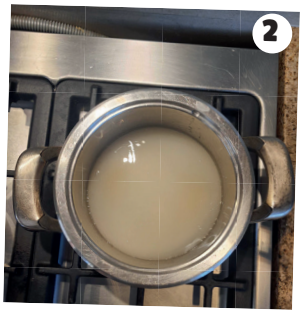
Warning

Sugar gets very hot! Ask an adult to help you with this craft.

What you need:

- 1 Pot
- Wooden Sticks
- Mugs or Flask
- Scissors
- Foil
- 3 cups Sugar
- 1 cup Water
- Spoons
- Food Colouring
- Duct tape

1. Fill your flask or mug with warm water and put it to one side.

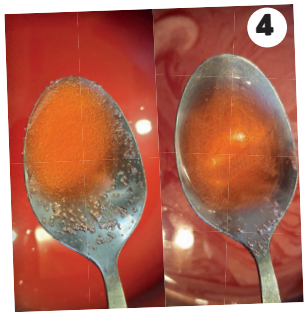


2. Pour the warm water and sugar together in a pot and stir.

3. Add some food colouring.

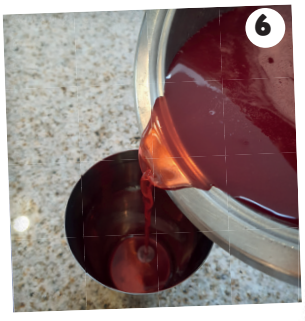
Try this!

You can add flavouring to make it yummier!



4. Stir until all of the sugar is dissolved and there are no granules left.

5. Grab your flask or mug, and drain out the hot water (be careful - it may be hot after the warm water!).



6. Pour the sugar solution into your mug (ask an adult to help you here, as hot sugar can burn you).

7. Cover your container with foil. Tape it up to keep the ants out. Poke a stick through the top and wait a week for the crystals to grow!

BASIC KARATE FOR BEGINNERS

Illustrations by Maria Keamogetse

Karate is a fantastic way to stay active, build confidence, and learn self-discipline. Keep practicing these basic moves, and you'll be on your way to becoming a karate master!

WHAT IS KARATE?

Karate is a martial art that originated in Japan. It's all about using your hands and feet to defend yourself. But karate is more than just fighting; it's about respect, discipline, and practice. By learning karate, you develop a strong mind and body.

KARATE ETIQUETTE

- **Bowing**: In karate, bowing shows respect. You bow to your instructor and fellow students before and after practice.
- **Karate Uniform (*Gi*)**: When you practice karate, you wear a special uniform called a *Gi*. The colour of your belt shows your level of skill – white is for beginners and black for experts.

Check out **Vol 12.2** for some great warm-up stretches!

Importance of warming up

Before you start practicing karate, it's important to warm up. Warming up helps prevent injuries and gets your body ready for action.

Simple warm-up moves

- Jumping Jacks: Start with 20 jumping jacks to get your heart pumping.
- Stretching: Do some arm circles, touch your toes, and stretch to the sides to loosen up your muscles.
- Running in Place: Run in place for a minute to get your blood flowing.

Get this!

Karate comes from two words: 'kara' meaning empty, and 'te' meaning hand. That's because karate is a martial art that focuses on hand-to-hand combat rather than the use of weapons.

PUNCHES

TSUKI

Practice Tips

Practice these moves regularly to improve your skills and build muscle memory.

Straight punch

1. Stance: Stand with your feet shoulder-width apart, one foot slightly forward.

2. Fist: Make a tight fist with your thumb on the outside.

3. Punch: Extend your punching arm straight forward, keeping your fist tight. Use your hips to add power.

4. Aim: Aim straight ahead and retract your arm quickly.

Uppercut punch

1. Stance: Stand with your feet shoulder-width apart, knees slightly bent.

2. Fist: Make a tight fist with your thumb on the outside.

3. Punch: Bring your fist upward in a quick motion, using your legs and hips for power.

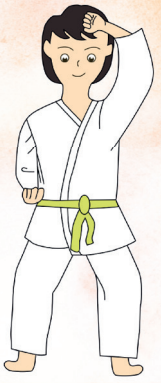
4. Aim: Aim for the chin level and return to the starting position.

BLOCKS

UKE

Practice Tips

Always practice in a safe environment, preferably with a partner or under supervision to avoid injuries.



Upper block

1. Stance: Stand with your feet shoulder-width apart, one foot forward.

2. Arm Position: Raise your forearm above your head to block.

3. Motion: Use your other hand to push the blocking arm upward.

4. Protect: Make sure your head is protected from above.

Lower block

1. Stance: Stand with your feet shoulder-width apart, one foot forward.

2. Arm Position: Bring your forearm down to block low attacks.

3. Motion: Sweep your arm in a downward motion.

4. Protect: Make sure your lower body is protected.

KICKS

GERI

Practice Tips

Remember to show respect for your instructor, training partners, and the martial art of karate itself.

Front kick

1. Stance: Stand with your feet shoulder-width apart, one foot forward.

2. Balance: Lift your back knee up towards your chest.

3. Kick: Extend your leg, striking with the ball of your foot.

4. Retract: Quickly bring your leg back to the starting position.

Side kick

1. Stance: Stand with your feet shoulder-width apart, one foot forward.

2. Pivot: Turn your supporting foot while lifting your back knee.

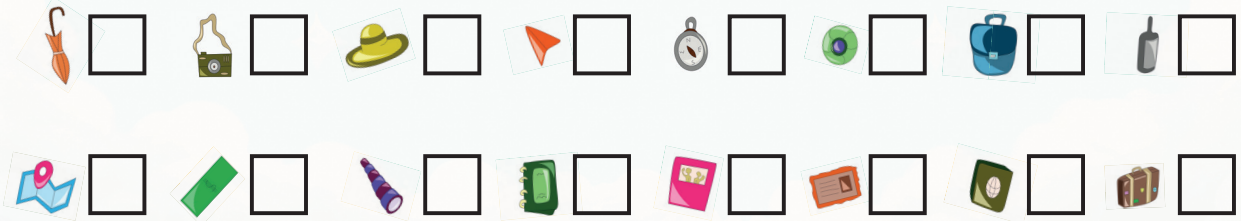
3. Kick: Swing your leg in a circular motion, striking with the top of your foot.

4. Retract: Bring your leg back quickly to the starting position.

EYE SPY

How to play

Amelia is ready to take flight! Help her count the inventory to get ready for a big adventure. Count all of the different items in the aeroplane and write down how many you have.



Find the answer on page 3

Test yourself

How much did you understand about coral reefs?

Read the article, *Coral Reefs: Underwater Wonders*, on page 34–37.

Then, answer the following questions from the text.

1. Read the sentences below, then match them to the correct word.

polyps	The most common type of coral reef.
fringing reef	A relationship between some animals, where they rely on each other and help each other out.
symbiosis	Scientists grow healthy corals and transplant them to damaged reefs.
coral gardening	These tiny animals grow together to make up coral reefs.

2. Fill in the missing information in these sentences.

a. Polyps form a hard shell made of _____ .

b. Coral reefs are very diverse and are known as the '_____'.

c. Coral bleaching occurs when coral expels _____ from their tissue and turn white.

d. Nitrogen and phosphorus from sea turtle _____ helps coral grow.

Reading Tip

Reading makes you smarter – it's a fact. Be sure to keep up good reading habits:

- Read anything
- Find a topic that excites you
- Read something difficult sometimes
- Ask someone to recommend a book
- Talk about the things you've read – reading is contagious!

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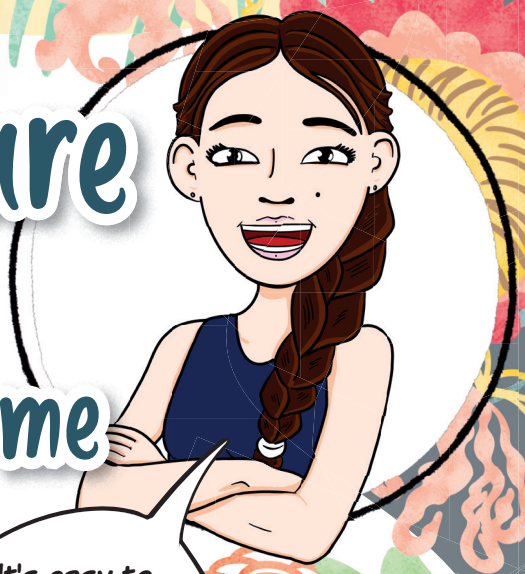
My friends are smarter than me



Monique *10 years old*

I'm feeling really down because all my friends seem so much smarter than me. They always get better marks and seem to understand things quicker. I feel like I'm always lagging behind and it makes me feel bad about myself. What should I do?

It's easy to get discouraged, but try to stay positive. Believe in yourself and your abilities!

It's natural to compare ourselves to others, especially our friends, but it's important to remember that everyone has their own strengths and weaknesses! Just because your friends might grasp certain topics quickly doesn't mean you aren't smart. People have different learning styles and paces. You might find that you excel in areas they struggle with. Instead of comparing your marks to your friends', try to focus on your own progress. Celebrate the small victories, like understanding a concept you found difficult before or improving your marks, even if it's just a little bit. There's also no shame in asking for help when you need it! Your friends might be more than happy to explain things to you, and working together can be a great way to learn. You can also ask your teachers for extra help or find resources online. Remember, being smart isn't just about marks or how quickly you understand things – it's also about being curious, persistent, and willing to learn. You have your own special qualities that make you who you are, and that's something to be proud of.

Have a question for Candice?

Do you have a burning issue on your mind? Need advice? Send your questions to supernova@bkpublishing.co.za and Candice could give you advice next!

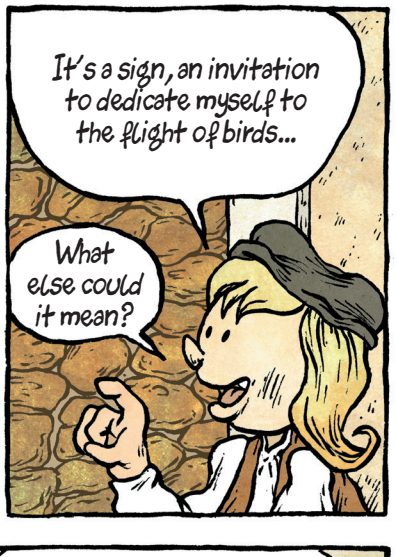
A Memory

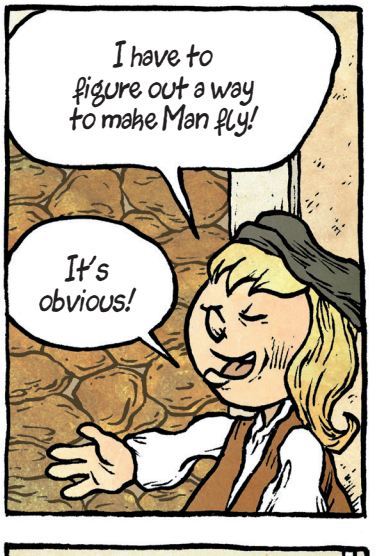
YOUNG Léonardo da Vinci

Augel

"My earliest memory is from when I was still in the cradle. A vulture came down to me...

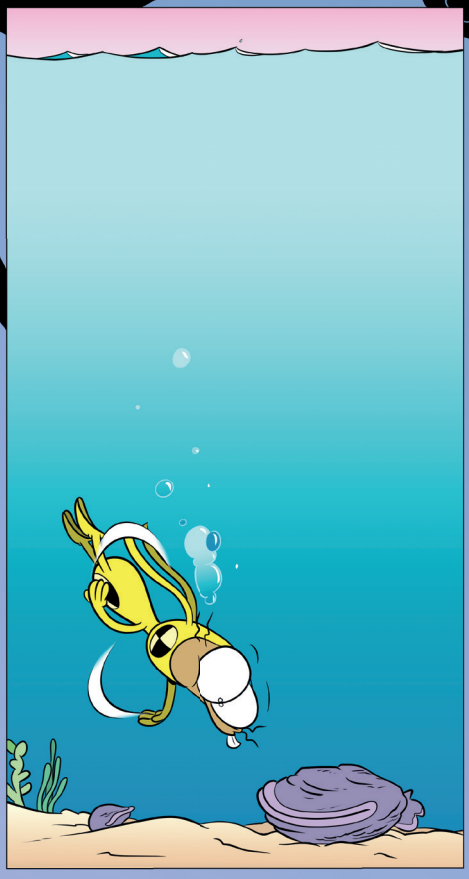
"He opened my mouth with his tail and struck me a few times before putting his tail feathers in my mouth..."

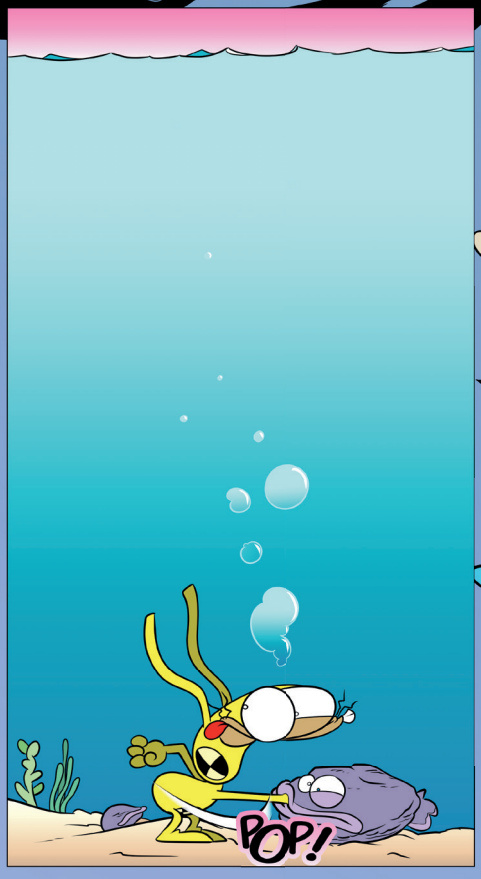


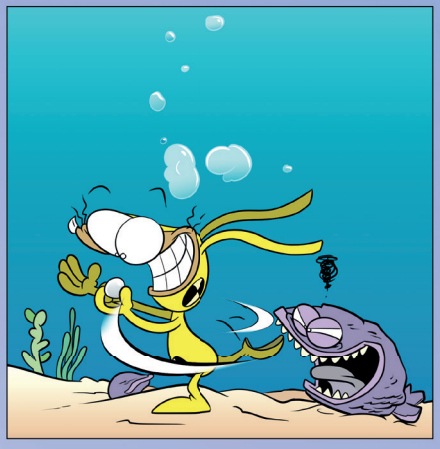


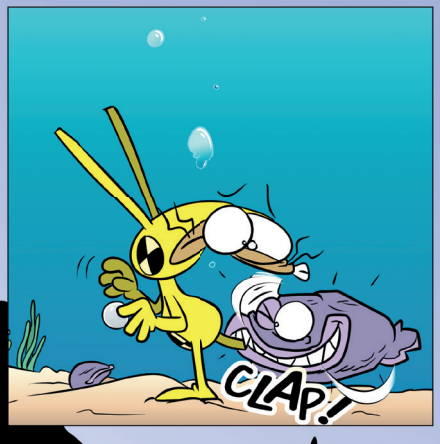
Created by William Augel.
First published in Le petit Léonard de Vinci, by La Boîte à Bulles, France.

WE DIE OUT OF BREATH







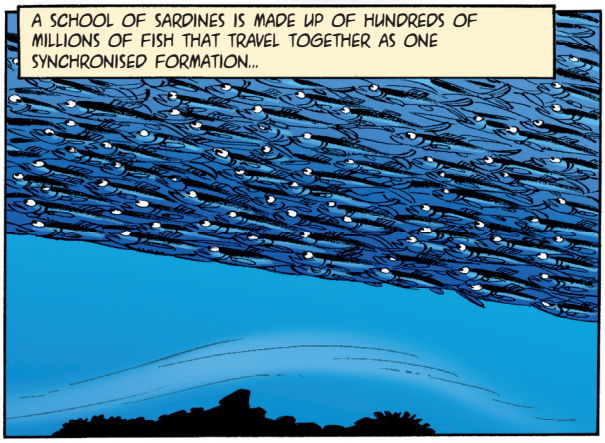


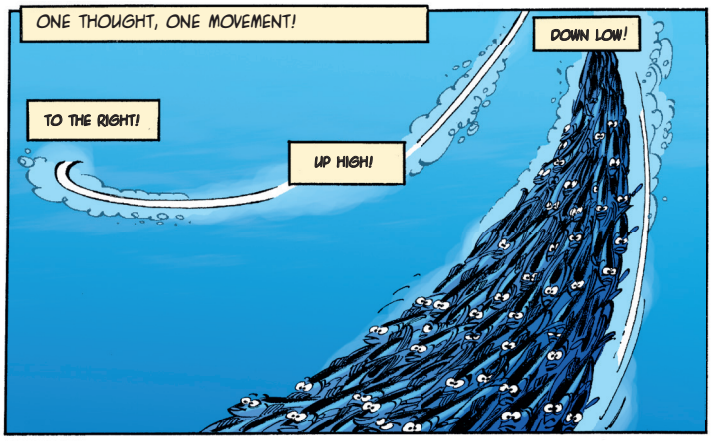
DOCTOR RIP EXPLAINS

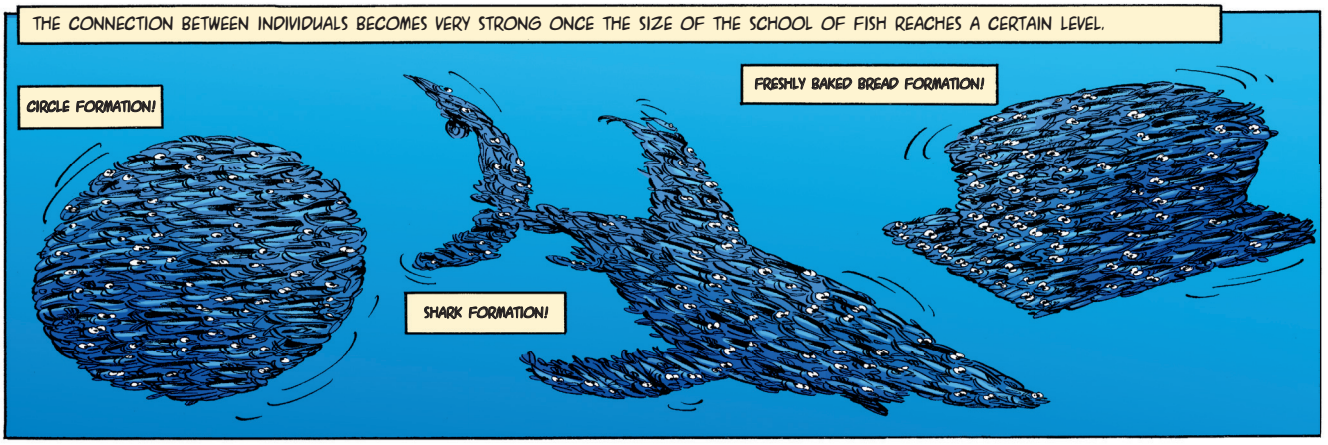
Created by Freg and Michel Quintin.
First published in Docteur RIP 3, by Éditions Michel Quintin, Canada.

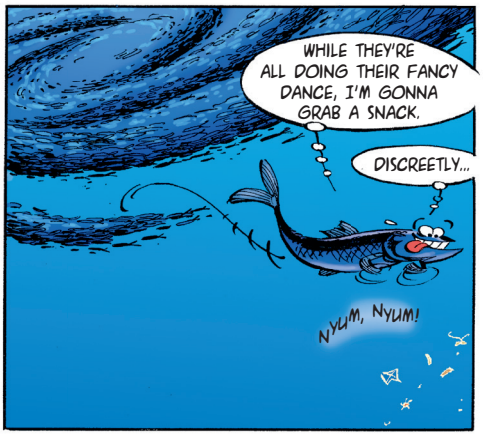
MARINE ANIMALS
THE COMIC

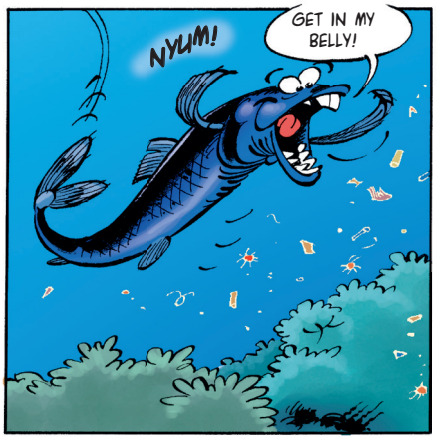
School of sardines

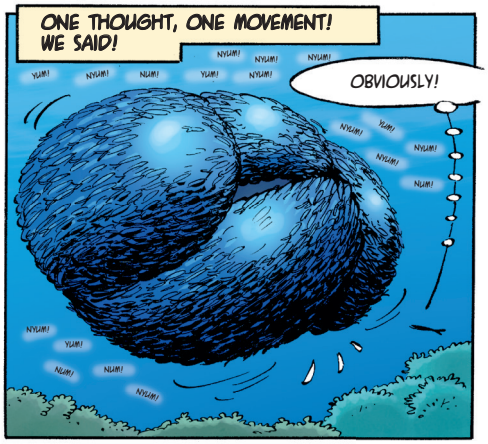












SARDINES
Sardinus pilchardus

- **Size:** 40 millimetres
- **Diet:** Plankton
- **Interesting fact:** The schools form in the evening and disperse at sunrise. They obviously don't like to sleep alone!

Depth : 0 to 200 m	LC*	Locality

Created by Christophe Cazenove & Jytéry.
First published in Les Animaux Marins en bande dessinée, by Bamboo Edition, France.