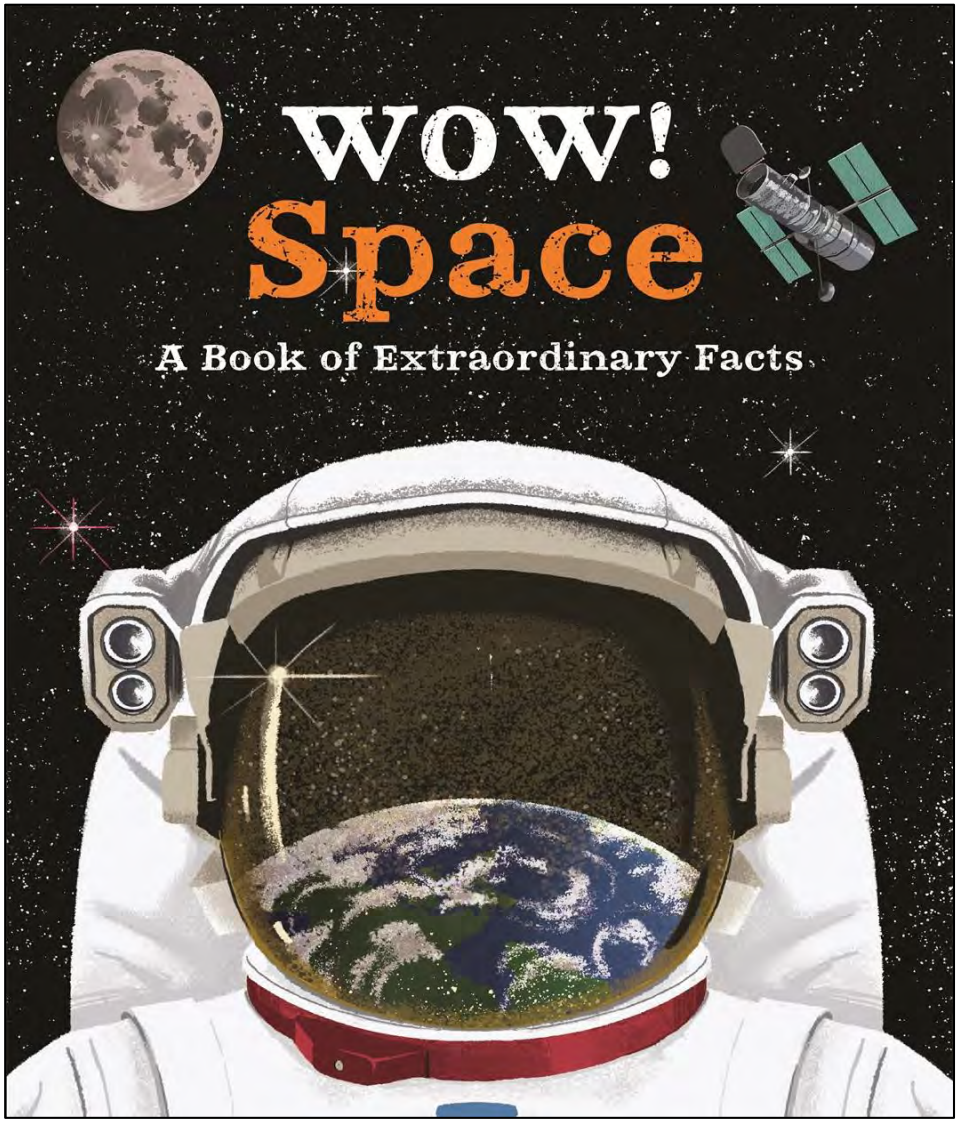
KINGFISHER

January

PAN MACMILLAN



Wow! Look What's in Space

Carole Stott, illustrated by Ste Johnson

Blast off into space and discover a world of facts about planets, satellites, meteors, rockets and much more

- Full of jaw-dropping, bite-sized facts
- Exciting artwork 'clues' lead readers through the book, linking information and helping stimulate discussion
- The next in the Wow! series

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Ages 5 - 7

Home, sweet home

Our home is a huge round ball of rock and metal whizzing through space.

Hold on... We're moving!

Right now, Earth is spinning around faster than a speeding jet plane. We don't feel it moving because Earth is so big. It does a complete turn once every day. It's daytime on the side of Earth facing the Sun, and night-time on the side facing away.

Hello down there!

More than seven and a half billion people live on Earth – enough to fill ninety thousand football stadiums. We share our planet with trillions of other living things. They live on its land and in its oceans, and in the hottest and coldest places.

If one night you could zoom into space and look down on Earth, you would see the bright lights of cities and towns.

What's that near Earth?

Wow!

Earth is surrounded by a blanket of invisible gases called the atmosphere. Plants and humans need the gases to breathe and to live.

Guess what?

An invisible force called gravity keeps us on the ground. Without it we would float off into space.

We Love Earth!

The biggest living animal is the blue whale. It weighs the same as 40 elephants and is as long as three buses.

Brilliant stars

Stars are huge balls of hot, glowing gas that twinkle in the night sky. The Sun is a star too!

PHEW! Feel the heat!

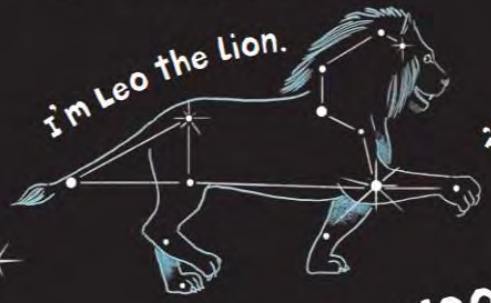
All stars are super hot. Much hotter than an oven cooking pizza at 200 °C. The Sun is an incredible 5500 °C. It's 150 million kilometres away but we still feel its heat.

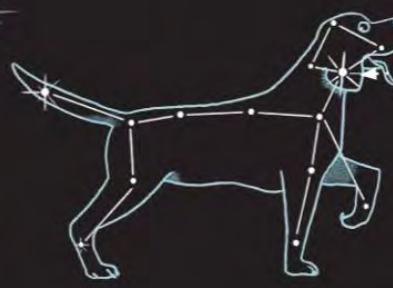
Our Sun could fit more than one million planets the size of Earth inside it. But it is small compared with some other stars in our galaxy. Next to the star Betelgeuse (say bet-el-jus), our Sun looks tiny!

Did you know?

Stars don't twinkle but shine steadily. As the star's light travels through the air around Earth the light wobbles and the star seems to twinkle.

For thousands of years, people have seen pictures in the sky by joining the stars with imaginary lines. These dot-to-dot drawings are called constellations. Many are of animals.



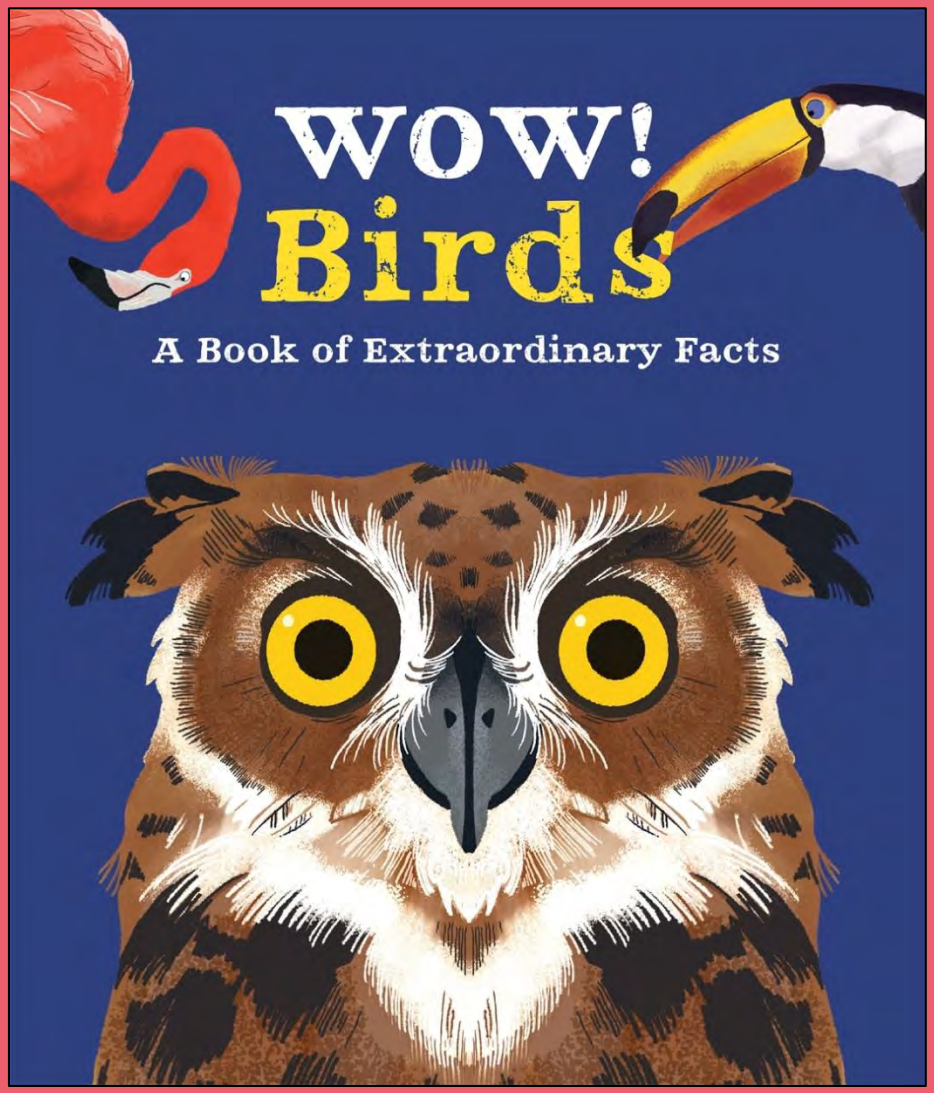


The brightest stars in the night sky have names. Brightest of all is Sirius. It is in the constellation called the Great Dog.

Wow!

There are more stars in space than grains of sand on all of Earth's beaches.

On a dark cloudless night, you can see about 300 stars in the city sky and about 3000 in a dark countryside sky. The darker the sky, the more stars you'll see.



Wow! Birds

Camilla de la Bedoyere, illustrated by Ste Johnson

Get ready to fly, soar, dive, and sing with beautiful birds from around the world

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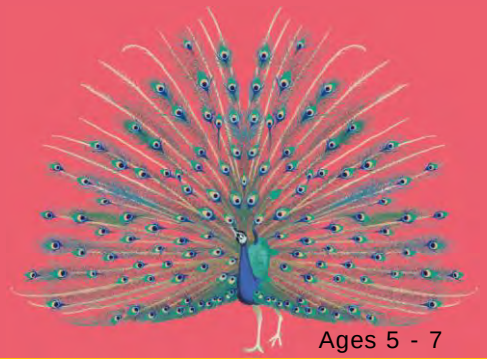


Ages 5 - 7

Beaks and feet

Birds have beaks, but no teeth. Beaks come in many shapes and sizes.

I reach into a flower to sip sugary nectar.

A sword-billed hummingbird has a super-long beak – it's longer than its body!

Wow!

A bird's beak is the perfect shape for the food it eats. Beaks are made of the same hard material that is in nails and horns.

More fish please!

A pelican's huge beak scoops up water and fish. Its throat is made of stretchy skin, so it fills up like a bag!

My feet are made for swimming!

Birds can use their skinny legs and clawed toes for running, perching, walking, grabbing and holding. Some birds such as ducks, geese, albatrosses and penguins have webbed feet.

Did you know?

Birds with webbed feet are great swimmers. Their feet help push the birds through the water.

I put my foot in my mouth again!

A parrot can use it feet like a hand and pick fruit and pop it in its mouth.

snip, snap, slurp!

A curlew's long, curved beak is great for slurping up worms, but a finch's small, strong beak is just right for cracking seeds open.

crack!

Chatty birds

Birds are famous for their lovely songs, but they make other noises too!

my name is Alex!

Alex the grey parrot could say 150 words and even used them to tell people the colour and shape of toys.

I'm the greatest mimic!

Many birds can copy (or mimic) the sounds they hear, but marsh warblers are the best mimics of all. They can learn the songs of more than 80 different types of birds!

Ring-ring!

Starlings can mimic the sound of a phone's ringtones!

Buzz! Snap! Pop!

Manakins sing with their wings. They rub their feathers to make 'buzz', 'snap' and 'pop' noises!

Moooo! Mooooo!

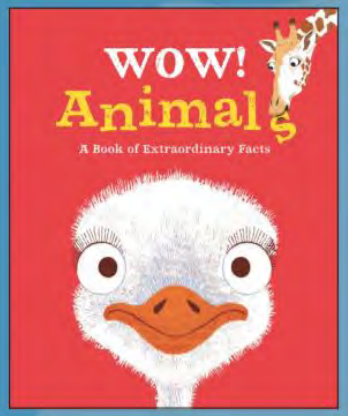
The deep booming call of a bittern can be heard 5 kilometres away, and sounds like a mooing cow. A bellbird's song sounds like a tinkling bell!

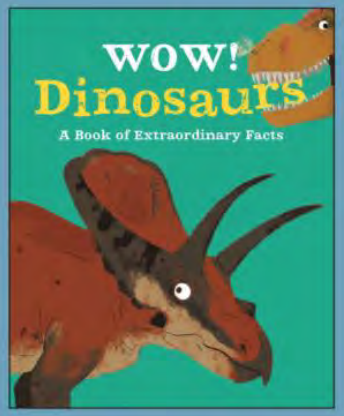
Tinkle! Tinkle!

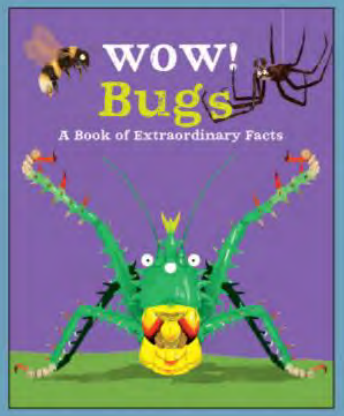
Wow!

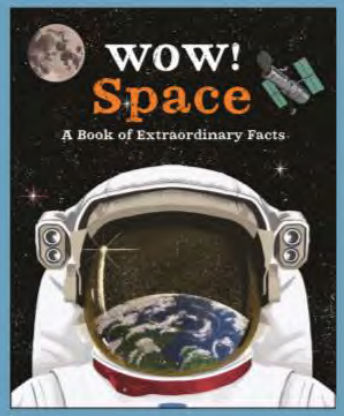
Male birds sing to find a partner, but most birds can make a loud alarm call to warn if there is danger nearby.

WOW!

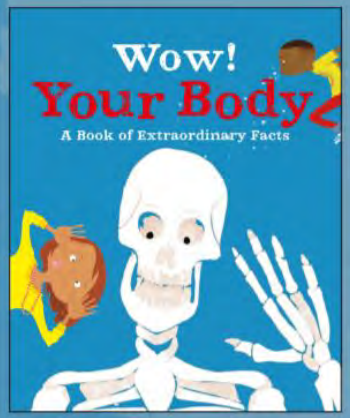


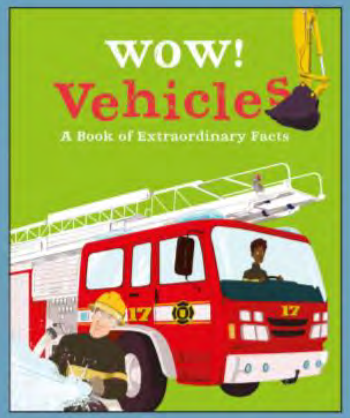


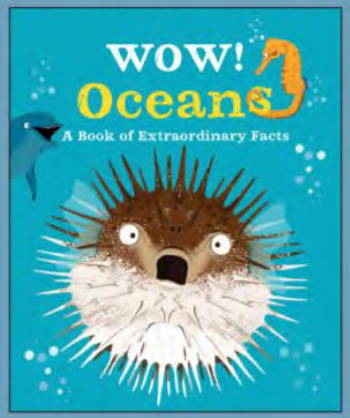


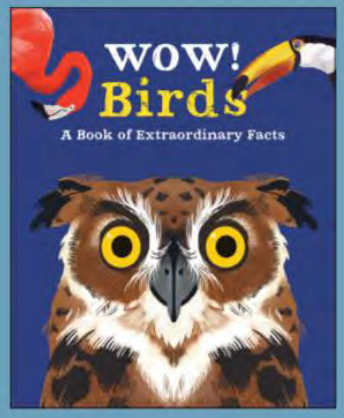


FORESTS
JUNE 2020

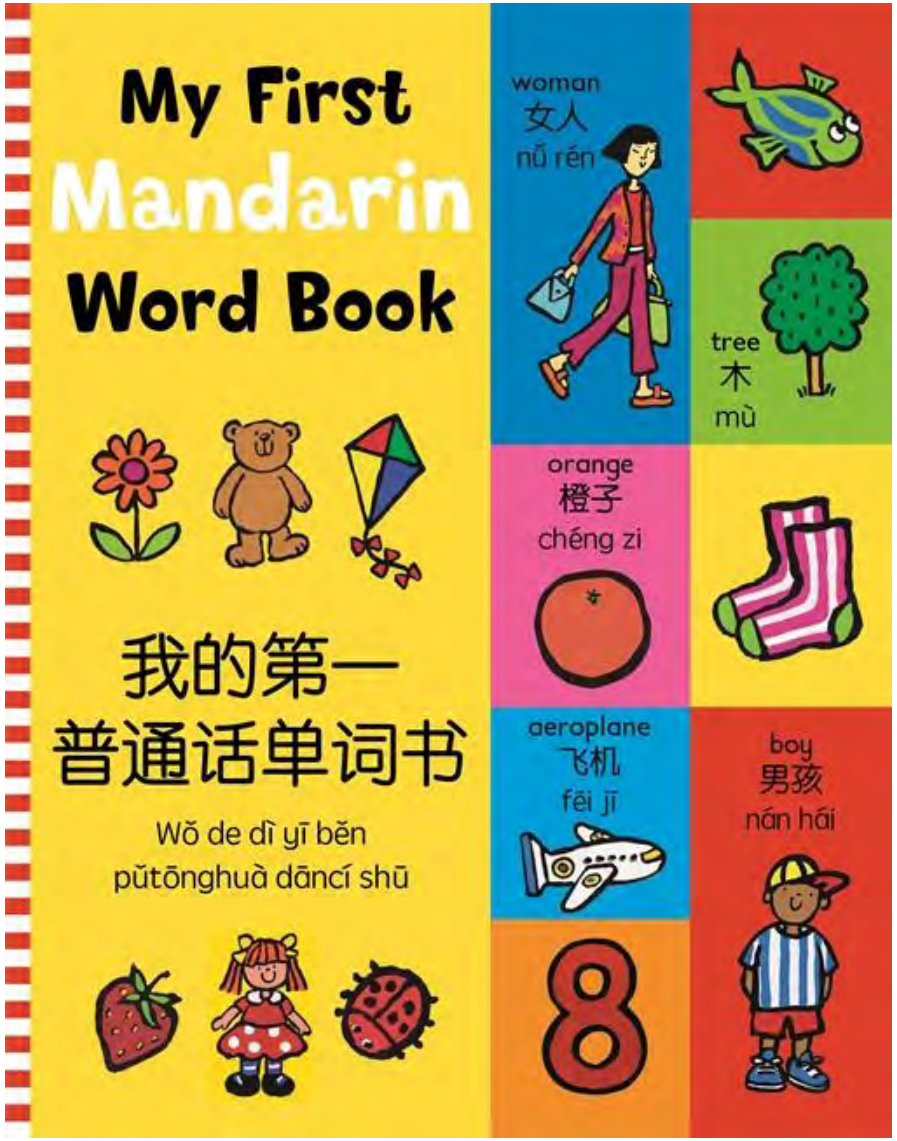








ROBOTS
JUNE 2020



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Mandy Stanley

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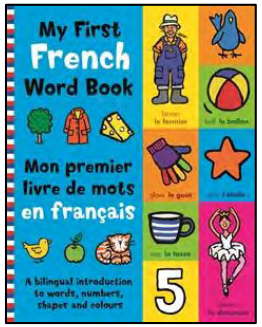
- Notes to parents and teachers provide effective approaches to language learning
- With English-Mandarin word list and pronunciation guide



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Ages 5 - 7

Numbers 1 to 10 数字一到十

1 one

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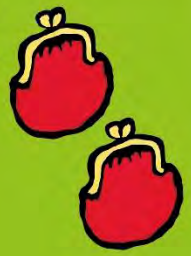
2 two



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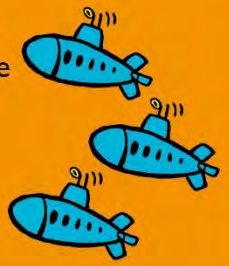

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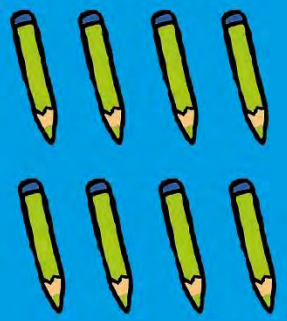

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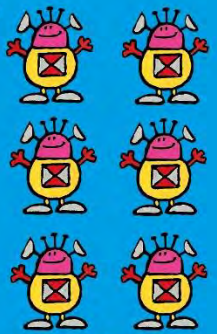

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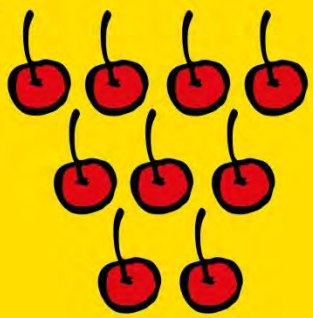

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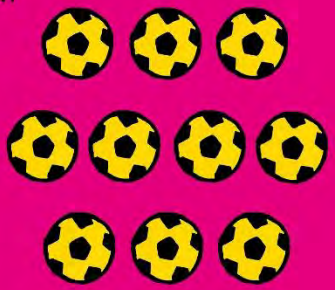

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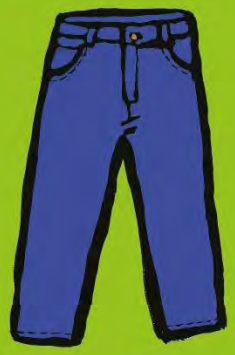
Clothes 服装 Fúzhuāng

T恤衫
Txūshān
T-shirt



牛仔裤
niúzǎikù
jeans

裙
qún
skirt

手套
shǒutào
gloves

袜子
wàzi
socks

外套
wàitào
coat

毛线衣
máoxiànyī
jumper

帽
mào
cap

运动鞋
yùndòngxié
trainers

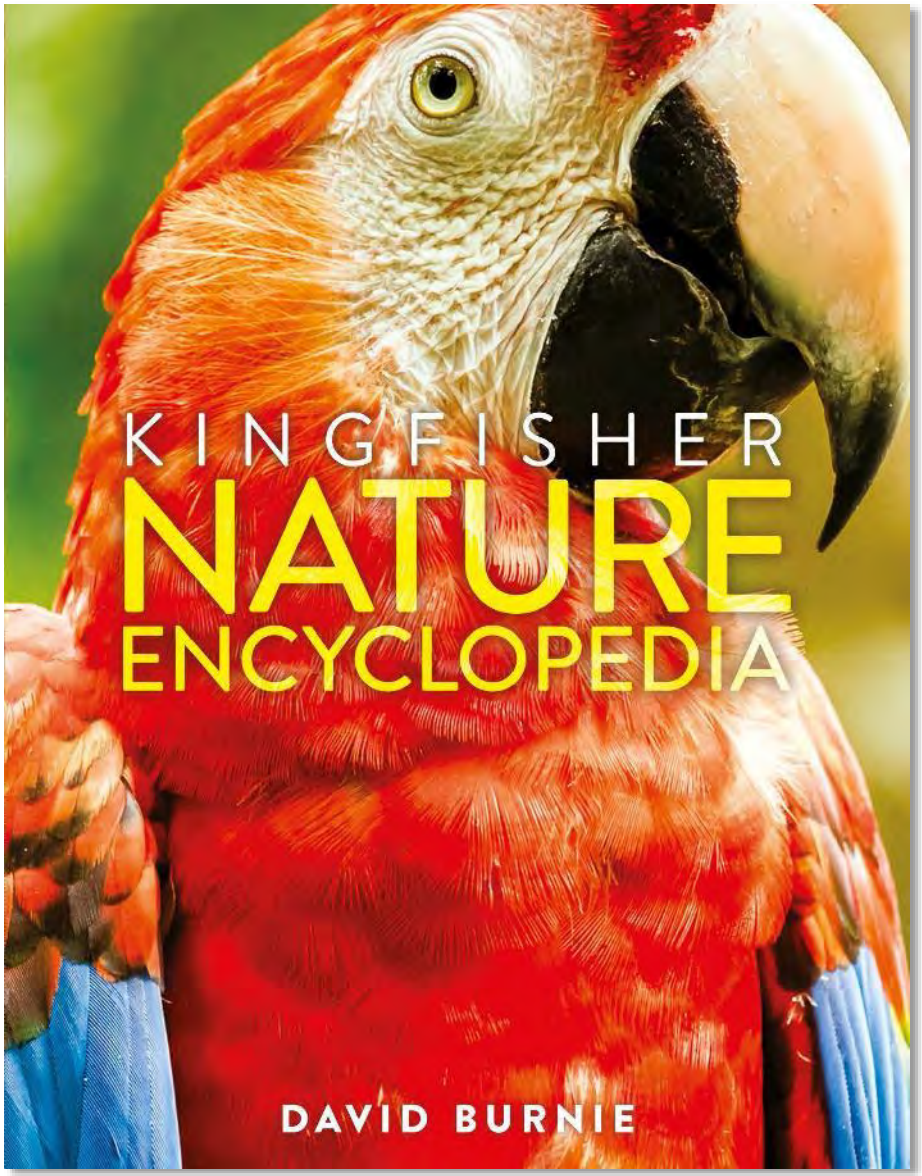
皮鞋
píxié
shoes

皮带
pídài
belt

围巾
wéijīn
scarf

February

PAN MACMILLAN



The Kingfisher Nature Encyclopedia

David Burnie

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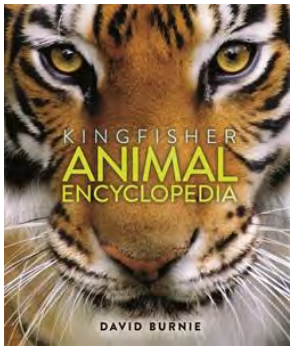

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Ages 7 - 9

< Trees growing in exposed places often develop a lopsided shape. This happens because the prevailing wind kills buds on one side of the tree, making it grow in the opposite direction. This windswept shape produces the tree.

How trees grow

Trees can keep growing for hundreds of years, so they have to be built for strength. Most trees steadily reinforce themselves as they grow, so the older and taller they are, the stronger they become.

In the tropics some trees rush up at a rate of 16 ft. (5m) per year—around 100 times faster than humans grow during their teens. In other parts of the world trees grow more slowly, but some still extend up a few feet every spring. For trees growing is a complicated business, and it has to be carefully managed. That is because every extra foot increases the risks of getting blown down or falling apart.

Sapwood and heartwood

Trees do not simply grow up most of them grow out at the same time. This outward growth is produced by the cambium—a layer of living tissue just a few cells thick. The cambium is located right beneath the bark, and it covers the entire tree like an invisible film. Trees grow when the cells in their cambium start to divide. On the inside layer of the cambium the cells produce new wood that makes the trunk and the branches expand. On the outside layer they produce new bark that pushes out, making the old bark split or fall away. These two types of growth fatten up a tree, giving it the extra strength it needs.

△ Banyan trees sprout new shoots that can turn in to extra trunks. The world's largest banyan tree has more than 1,700 trunks and covers an area bigger than a soccer field.

Because the cambium stays near the surface, this is where a tree's youngest wood is found. Called sapwood, it is sometimes so full of sap that it feels slippery and wet if it is cut. But as each year's sapwood gets older, it gradually starts to change. It stops carrying sap because its cells become blocked with resins and oils. This turns it into heartwood—old wood that is heavy and hard. Heartwood strengthens trunks and branches like an inner skeleton. But unlike bone, heartwood cannot grow because almost all of its cells are dead.

▽ In the mountains the higher up trees are, the more slowly they grow. The timberline marks the point where conditions

Growth rings

In places where it is always wet and warm trees can grow all year-round. But where the winters are cold all the year's wood is formed in a single burst during the spring and early summer. These bursts of growth create rings in the wood that can be seen when the trees are cut down.

△ The traveler's tree from Madagascar grows a gigantic fan of leaves. The youngest leaves are on the top of the fan, and the oldest ones are on the sides.

By counting growth rings, it is easy to figure out a tree's age. But growth rings can reveal much more than this. Because they are thick when growing conditions are good and thin when they are bad, they also show what the weather was like in the past. By examining growth rings from the world's oldest trees, dendrochronologists—or tree ring experts—have been able to piece together a climate record for the world dating back over 5,000 years.

△ Talipot palms from Southeast Asia flower once and then die. Each tree can have more than 250,000 creamy yellow flowers.

Palm trees

Most trees have a "wraparound" cambium, but palms and their close relatives are built in a different way. They have just one single growing point at the very tips of their trunks. The growing point builds the trunk, and as it moves up, growth beneath it stops. If the top of a palm is cut off, the tree stops growing and dies.

This unusual growth technique means that palm trunks get taller without getting any wider—one of the reasons why they are such graceful trees. Palm trunks do not have true bark, which means that they cannot heal cuts in the same way as other trees. People who harvest coconuts make use of this. The steps that they cut into a coconut palm in order to climb it last for its entire life.

Changing shapes

Palm trees never have branches, but with other trees new branches often shade out the old ones lower down. To deal with this problem, trees often carry out their own tree surgery by shedding the branches closest to the ground. This surgery starts when a tree is young, and it continues year after year. As a result, the remaining branches move higher and higher, and the tree develops a crown. Some of the world's greatest branch shedders grow in tropical forests. Here the tallest trees end up with smooth, branchless trunks up to 98 ft. (30m) high, soaring up like pillars from the forest floor.

Trees respond to their surroundings in other ways. They grow taller if they are crowded, and they often lean away from the prevailing winds. In shady conditions they often have larger leaves. These different growth patterns help explain why no two trees are exactly the same.

PLANTS WITHOUT FLOWERS

NO MATTER HOW HARD YOU LOOK, YOU WILL NEVER FIND MOSSES OR FERNS IN BLOOM. PLANTS LIKE THESE BREED WITHOUT NEEDING FLOWERS—JUST LIKE THE EARLIEST PLANTS ON EARTH.

Until the end of the age of the dinosaurs, flowers did not exist. There was no grass—because grasses are flowering plants—and no broad-leaved trees. All plants bred by shedding tiny spores or by making primitive seeds. Since then the world has changed a great deal. Dinosaurs have vanished, and flowerless plants have been pushed aside by ones with blossoms. But flowerless plants still survive, and some are very successful.

◁ Moss grow their spores in slender capsules that are usually around one inch tall. One of these capsules has opened up so that it can scatter its spores into the air.

MOSSES AND LIVERWORTS

One of the best places to see these flowerless survivors is by fast-flowing streams. The rushing water creates a cool and damp habitat—exactly the kind of place where mosses thrive. Mosses are basic plants without true leaves or roots. They often look like bright-green cushions, although some underwater types look like hair. Unlike flowering plants, they are small and compact. The world's tallest species, from Australia, is only 23 in. (60cm) high.

To grow, mosses have to be wet, and many of them can hold water like a sponge. But although they like streamsides and marshy places, they do not have to be permanently damp. Some mosses grow on rocks and walls where they can dry out for weeks or months at a time. These dried-up mosses look gray and dead, but when it rains they quickly come back to life.

Streamsides are also a favorite habitat for liverworts—the simplest plants in the world. Some look like small green tongues, while others are more like ribbons with tiny leaves. Liverworts creep along instead of growing up, and they branch off by splitting in two. Many grow over damp rocks, but in rain forests they also live on other plants' leaves. They do not damage their host plant, but they do steal some of its light.

△ Kidney ferns get their name because their leaves are just one cell thick. These delicate plants can only grow in very humid places because they dry out easily.

FERNS

There are over 11,000 species of ferns, making them the largest group of nonflowering plants. The smallest types could easily fit into an eggcup, but the world's tallest species—tree ferns—can grow up to 82 ft. (25m) high. Most ferns are rooted in the ground, but some clamp onto tree trunks, while a few float on the surface of ponds. Some species of ferns are rare, but one kind—called bracken—is a troublesome weed.

Compared to mosses and liverworts, ferns are more like flowering plants. They have true roots as well as stems and leaves, and they also have internal pipelines that carry water up from the soil. But ferns do not have flowers, and they spread by making spores rather than seeds. Their life cycles switch between two different types of plants (see page 101).

◁ Liverworts spread by making spores and by growing cups containing miniature "eggs." The eggs jump out of these cups when they are hit by rain. Exactly the same technique is used by bird's-nest fungus (see page 73).

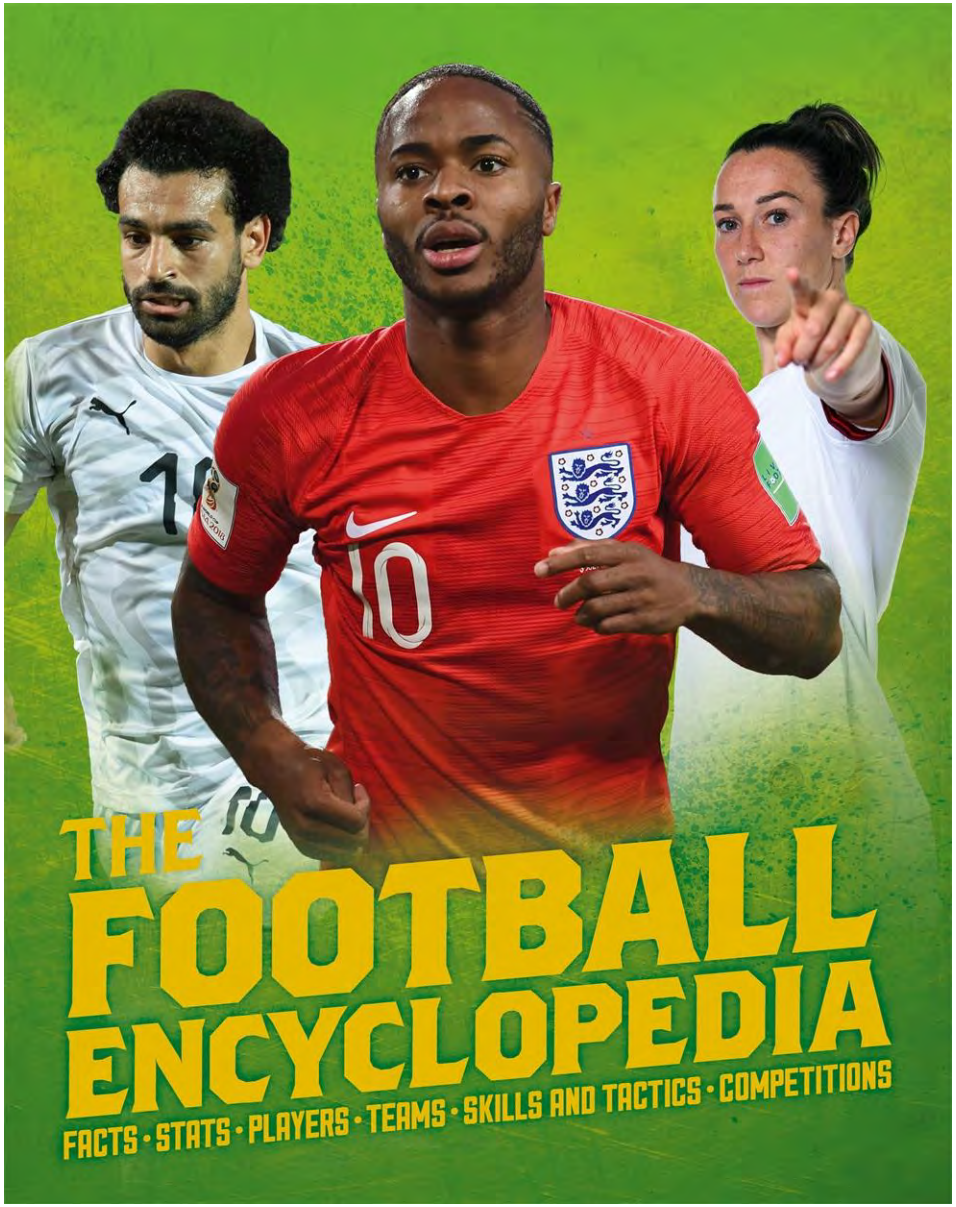
CONIFERS AND THEIR RELATIVES

Seeds and flowers usually go together, but in the history of plants seeds were actually developed first. That explains why conifers can have seeds although they do not have flowers. There are only around 550 types of conifers in the world compared with 250,000 types of flowering plants, but they are still very plentiful in places where it is dry or cold. In the far north they make up the boreal forest—the largest forest in the world.

Conifers also have some relatives that are harder to find. They include cycads—which look like palm trees—and the ginkgo, or maidenhair tree. This "living fossil" comes from the Far East and has leaves that look like bright-green fans. Another conifer relative, called welwitschia (see page 184), is a leading candidate for the title of the strangest plant in the world. It lives in the deserts of southwest Africa, and it often looks like a heap of garbage rather than something living.

△ Conifers have two types of cone. Male cones make pollen, but female cones make seeds. These are young female cones from a larch tree. They are still soft, but they will turn hard and woody when they are ripe.

March



The Football Encyclopedia

Clive Gifford

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Ages 5 - 7

THEN AND NOW

Going back in time 140 years, a modern football fan would be surprised to find no referees, corners or pitch markings at a game. Players wore coats and even top hats; they handled the ball in the air and wrestled with each other on the ground. Over time, football has evolved into the game that we know today.

▶ *The referee's whistle was first blown at a football match in 1878. British firm Acme Whistles, astonishingly, has sold over 200 million Acme Thunderer whistles, which have been heard at World Cups and in top leagues around the globe.*

PITCHING UP

Unlike in most sports, the pitch in football can vary in size. Most are around 100m long and 65–70m wide. Back in the 1860s, a pitch could be as long as 180m. The first markings arrived in 1891, including a centre circle and a line running the width of the pitch, 10.98m in front of the goal line. A penalty could be taken from any point along that line. It was another 11 years before the pitch markings we know today were introduced. Since then, only two additions have been made – the penalty arc at the front of the penalty area (in 1937) and the corner quadrants (in 1938).

▲ *At the 2002 World Cup, held in Japan and South Korea, the grass at the Sapporo Dome was grown away from the stadium and then moved as an entire pitch into the arena on a cushion of air.*

GOALS

To score a goal, a team has to propel the whole of the ball over the goal line, between two posts that are set 7.32m apart. On many occasions, controversy has raged over whether the ball crossed the line – from the 1966 World Cup final between England and West Germany to the DFB-Pokal Cup final in 2014 between Borussia Dortmund and Bayern Munich.

Early goals consisted of just two posts. Following arguments over the height of a shot, a white tape was fitted to the posts, 2.44m above the ground. Wooden crossbars began to replace tape in the 1870s. Goal nets came later, invented by an engineer from Liverpool, John Alexander Brodie. They were first given a trial in January 1891, when Everton's Fred Geary became the first footballer to put the ball in the back of the net. Incidentally, that game was refereed by Sam Widdowson, who had invented shinpads 17 years earlier.

▶ *Referee Ken Aston came up with the idea of red and yellow cards after a stormy World Cup game in 1966. Here, he sends off Italy's Georgio Ferrini in 1962.*

THE MEN (AND WOMEN) IN BLACK

Referees did not feature in early games of football because the sport's founders believed that gentlemen would never intentionally foul or cheat. Instead, each side had an umpire to whom they could appeal. By 1891, games were controlled by a referee in order to cut down on controversial decisions and long stoppages for debate, and the two umpires became linesmen. (Since 1996, linesmen have been known as assistants.) Despite often being described as the 'men in black', referees have played in all sorts of colours. Early referees tried to keep up with play dressed in the popular fashions of the time – trousers, a blazer and even a bow tie.

FACTFILE The Belgian referee at the 1930 World Cup final, Jean Langenus, wore a dinner jacket, golfing plus-four trousers and a red striped tie.

BOOTS AND BALLS

No game is complete without the football, 40 million of which are sold every year. It is the referee's job to check the match ball and spare balls for size (68–70cm), weight (410–450 grams) and correct air pressure. Modern footballs are made from leather or synthetic materials, with a waterproof outer coating. Brazilian club Santos pioneered the use of a white ball (instead of the traditional brown leather ball) for greater visibility during evening games. Early footballs were made from the inflated bladder of a pig or sheep, covered in a leather shell that was secured with a set of laces. Contrary to popular myth, footballs of the past were not heavier than today's, at least when they were dry. Without a waterproof covering, however, early balls soaked up moisture and gained weight.

Football boots were certainly heavier in the past. Originally, players used their heavy work boots, tying them up over the ankle. The boots often had reinforced toecaps, and players sometimes nailed metal or leather studs into the soles. Modern boots are lightweight and flexible, allowing a player to 'feel' the ball on his or her foot. Their soles come in a range of stud, dimple and blade patterns. Each design gives the right level of grip for a particular pitch condition.

FACTFILE India withdrew from the 1950 World Cup when FIFA refused to allow their footballers to play in bare feet.

▲ *Some modern boots have moulded dimples for playing on hard or artificial pitches; others have screw-in studs to give grip on wet or soft pitches.*

▲ *Alex James, a star for Arsenal in the 1930s, tries out a muscle-enhancing machine. Today's players undergo carefully planned exercise regimes and eat a diet that is scientifically monitored by their clubs.*

KITTED OUT

Today's lightweight football kits are the result of years of research and development. During the first ever international fixture, in 1872, the Scotland and England teams wore knickerbockers (long trousers), long shirts and bobble hats or caps. Gradually, football kit developed to give players more freedom of movement, although shorts remained almost knee length until the 1960s. Numbers appeared on shirts regularly for the first time in the 1930s, but player names did not arrive until the late 1980s. In 1924, the English Football Association (FA) began to insist that teams have a second strip (known as an away strip) that could be worn in the event of a colour clash. Today, kit manufacture is a highly profitable business. Teams often have two or even three away strips; they update their kit design every season and sell many thousands of replica shirts to supporters.

▼ *Samuel Eto'o wears Cameroon's radical all-in-one kit at the 2004 African Nations Cup. The figure-hugging design gave opponents little material to tug or pull, but broke FIFA's rule that shirts and shorts have to be separate. An earlier Cameroon kit with sleeveless shirts – worn for the 2002 World Cup qualifying games – was also declared illegal.*

TACTICS

Teams may kick off a game in one of several common formations, but there can be great variation in how they play within that formation and in the tactics they use. For example, a team that lines up as a 4-4-2 side may choose to play defensively, with midfielders tucking in, or aggressively, with one or more midfielders joining the strikers in attack.

TAILORING TACTICS

Managers start a game with what they feel are the best tactics for the players available and the opposition they face. They watch how a match unfolds closely, knowing they can change tactics at any time to exploit an opponent's weakness or to fix problems in their own team's play. Most top footballers can play in several positions. A manager may switch formations using the same players or bring on a substitute with different attributes and skills. In the 2014 World Cup, Netherlands coach Louis van Gaal brought on substitute goalkeeper Tim Krul purely for the penalty shootout with Costa Rica. Krul saved two penalties as the Netherlands won. A year later, at the 2015 Women's World Cup semi-final versus Germany, US coach Jill Ellis changed her usual 4-4-2 formation, switching to a 4-2-3-1, which helped her side triumph 2-0.

TACTICS IN DEFENCE

Teams have several choices about how they defend. Some managers prefer defenders to patrol areas of space that overlap, a system known as zonal marking. This tactic is often used by Argentinian clubs and many national sides. It requires good communication between defenders. Alternatively, each defender marks an individual player, tracking their opponent's attacking runs throughout the game. Manchester United's Ander Herrera, for example, man-marked Chelsea's Eden Hazard during their April 2017 league game, restricting Hazard's time on the ball and earning United a 2-0 win. When an opposing team features a dangerous playmaker positioned behind the strikers, a side may nominate an extra central defender to man-mark him or her.

▲ *Clint Dempsey heads the ball during the 2011 CONCACAF Gold Cup final between the USA and Mexico. Versatile players such as Dempsey, who can play up front or in several positions in midfield, give a coach more options to change formations and tactics during a game.*

▶ *The offside trap is a defensive tactic in which the back three or four players move upfield in a straight line to catch an opponent offside. It can be very effective, but may be beaten by a player dribbling through the line or by a well-timed through pass combined with an attacking run.*

MATCH ACTION

A goal down and under pressure from a Danish attack down their right wing, Senegal scored a superb counter-attacking goal at the 2002 World Cup. Senegal's Henri Camara made a firm tackle on Martin Jorgensen and played a quick pass down the wing to El Hadji Diouf. Diouf, closely marked by Jan Heintze, spotted Salif Diao's run and backheeled the ball into his path. Diao hit a perfect pass to Khalilou Fadiga, who was sprinting into the centre circle. As Diao continued his run, Fadiga took the ball into the Danish half before playing a perfectly timed through pass. Racing between two defenders, Diao latched onto the ball and coolly dispatched it into the corner of the goal.

LONG OR SHORT

All teams seek to pass and move the ball into the attacking third of the pitch, where goalscoring chances can be fashioned. The way in which they get the ball there can vary greatly. For many decades, British managers believed that hitting long balls towards tall target strikers in the opponent's penalty area created more goal chances, often through a defensive mistake. In continental Europe and elsewhere, a shorter passing-and-moving game was often preferred, with sides keeping possession for relatively long periods as they looked for an opening in the opposition defence. Another tactic is to rely on pinpoint passing and skilful dribbling to get into the opposition penalty area. Some teams play a counter-attacking game, defending in large numbers and soaking up pressure. When they retrieve the ball, they move it rapidly out of defence with a long pass or by running with the ball. Fast, accurate counter-attacking can catch the opposition off guard and outnumbered, but requires players with good pace and awareness. Many coaches mix up their passing and movement tactics – if their team is behind with only minutes to go, they may switch to a direct style, pushing extra players up into the opposition penalty area to look for headers and knock-downs.

◀ *Cristiano Ronaldo practises free kicks at a Portuguese training camp. Attacking set pieces are often planned and worked on hard in training as they offer a good chance of scoring.*

FACTFILE

Barcelona lost the first leg of their 2017 UEFA Champions League quarter-final versus Paris Saint-Germain 4-0. In an astonishing comeback, they won the second leg, 6-1, to go through.

HIT THE NET

www.fourfourtwo.com/performance/tactics
A collection of great tactical tips and videos from leading coaches.

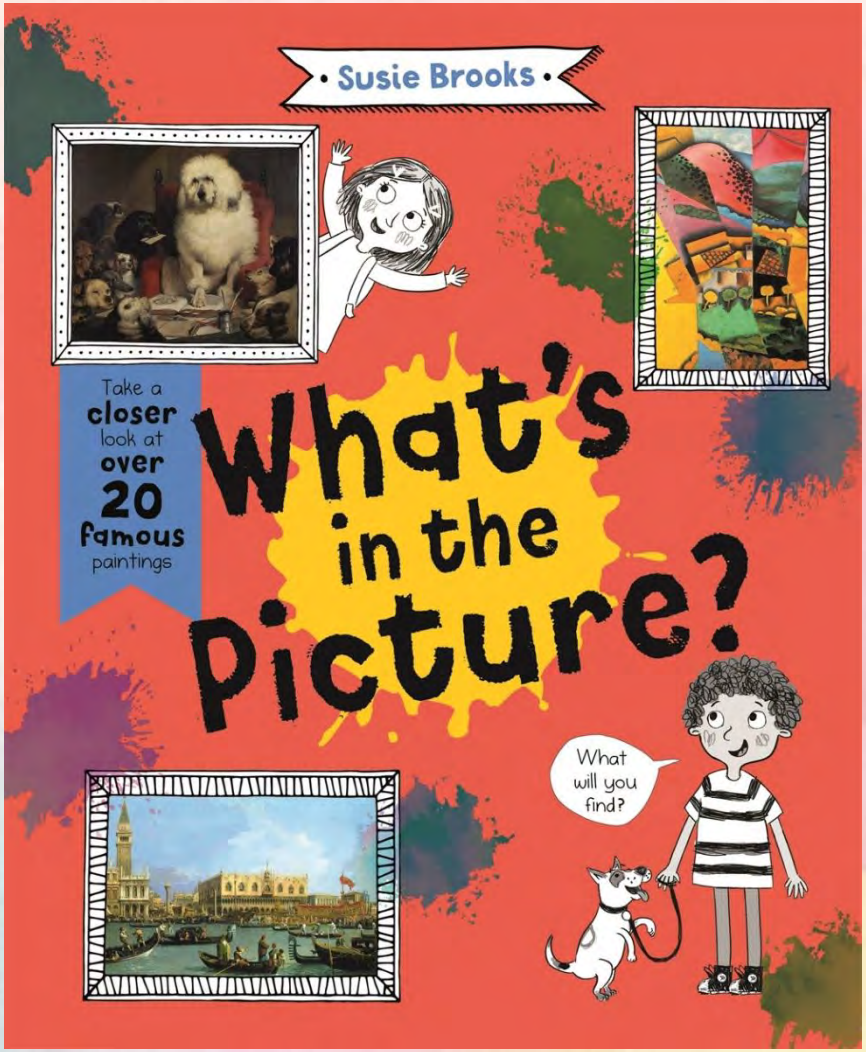
www.thefalse9.com/category/football-tactics-for-beginners
A great series of articles on different aspects of tactics, from keeping compact in defence to how to counter-attack and the role of full-backs.

www.football-lineups.com/tactic/4-3-1-2
Diagrams and comments on more than 20 different formations used by teams.

▶ *Liverpool's Mohamed Salah dribbles at speed around Manchester City's Aymeric Laporte. Salah can play on the wing, as a second striker or central attacking midfielder and can even switch positions throughout a match.*

What's in the Picture?

Susie Brooks



The engaging follow-up title to ***Who's in the Picture***

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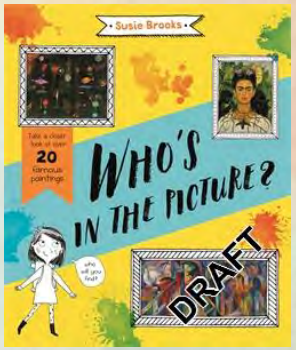
- Features artworks by Old Masters, Impressionists and modern artists from galleries and museums around the globe
- Fun, playful look-and-find questions encourage children to hunt for objects and other details
- Fits in with the STEAM approach to learning



9780753444856
Hardback
March 2020
£9.99

Ages 7 - 9

What's in this picture from a tomb in ancient Egypt?

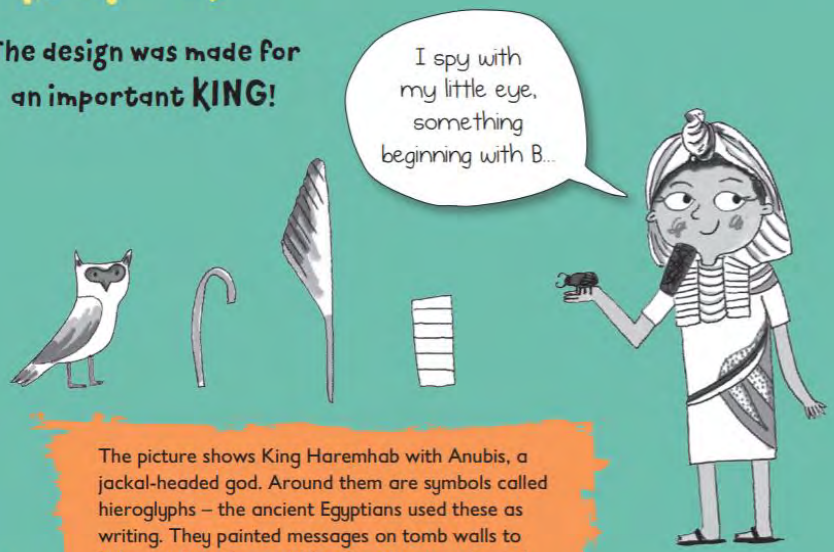
The design was made for an important KING!

Each picture in this book has a story to tell or lots of different things to spot, so you'll need to use your eyes *and* your imagination!

You might find little surprises, or get a feeling from the colours or shapes. One thing is certain – the more you look, the more you will see…

Can you spot...

- **1** hare
- **2** red eyes
- **4** snakes
- **5** red discs



The picture shows King Haremhab with Anubis, a jackal-headed god. Around them are symbols called hieroglyphs – the ancient Egyptians used these as writing. They painted messages on tomb walls to help people in the next life, after they were buried.

How many **birds** can you see?

The King with Anubis, Tomb of Haremhab by Lancelot Crane (1910–11; original from about 1323–1295 BCE)

The Birthplace of Herbert Hoover, West Branch, Iowa by Grant Wood (1931)

Can you find any **shadows?** Where is the **sun** shining from?

This picture shows the place where Herbert Hoover was born. He grew up to be an American president. By the time Wood painted this scene, Hoover had moved away. The man we can see is a tour guide.

What's in this neat **garden** in a **country town?**

We're seeing it from ABOVE, like a bird!

A man points to a **house.** Is anybody home? What **season** do you think it is here?

April

PAN MACMILLAN

Minecraft Earth

Become a Minecraft Earth master builder with this essential guide to the ultimate Augmented Reality game

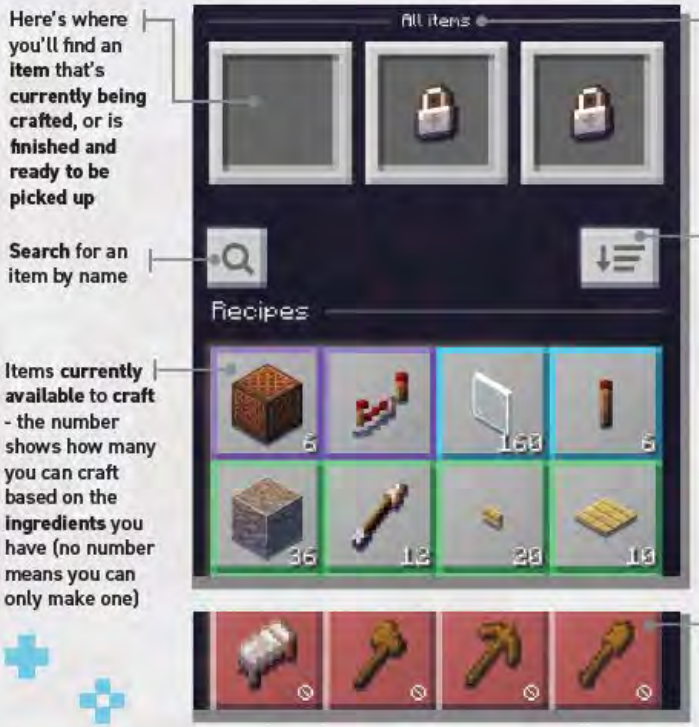
- Minecraft Earth is set to be one of the biggest game releases, following the phenomenon of Pokemon Go
- Minecraft boasts 91 million monthly players, making it one of the most popular games among children
- Tips on how to build up your collection of blocks, mobs and rare items by finding Tappables. A complete guide to all the mobs you'll meet, including the new types developed specifically for Minecraft Earth

9780753446225
Paperback
June 2020
£6.99

Ages 9 - 11

GET CRAFTING

SICK OF WAITING FOR A BLOCK YOU'RE AFTER TO JUST TURN UP IN YOUR TRAVELS? TIME FOR SOME DIY IN THE CRAFTING SCREEN.



Here's where you'll find an **item that's currently being crafted, or is finished and ready to be picked up**

Search for an item by name

Items **currently available** to **craft** - the number shows how many you can craft based on the **ingredients** you have (no number means you can only make one)

Select the type of item you'd like to **craft** or view everything available in **'All items'**

Sort the item list by name, **rarity** or the **quantity** that you can currently make

Unavailable items - they require ingredients that you haven't yet collected

ONCE YOU'VE DECIDED WHAT TO CRAFT, TAP ON THE RECIPE TO SEE MORE INFORMATION ABOUT THE ITEM.

ITEM NAME

HOW RARE THIS ITEM IS

How many blocks you want to craft - you can only increase this if you have enough ingredients in your inventory

How long it will take to craft the number of items you've selected

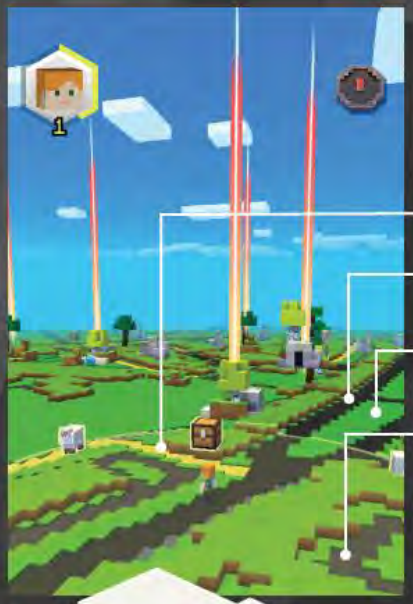
What you'll need in your **inventory** to start crafting

Tap to begin your craft - if you don't have the right **ingredients** yet you'll get an **error message**

Crafting times include time that passes when you're not playing the game, so for a **5-minute recipe**, you can **start crafting, exit the app,** then return 5 minutes later, and your item will be ready for you.

NAVIGATING THE MAP

THE MAP SCREEN IS THE HEART OF MINECRAFT EARTH, SO YOU'LL NEED TO UNDERSTAND IT TO NAVIGATE THE GAME - AND THE REAL WORLD!



Although the game's map may not look like much like the real world at first glance, it is based on it, and as you move around with your phone you'll see your character walking

PUBLIC FOOTPATHS

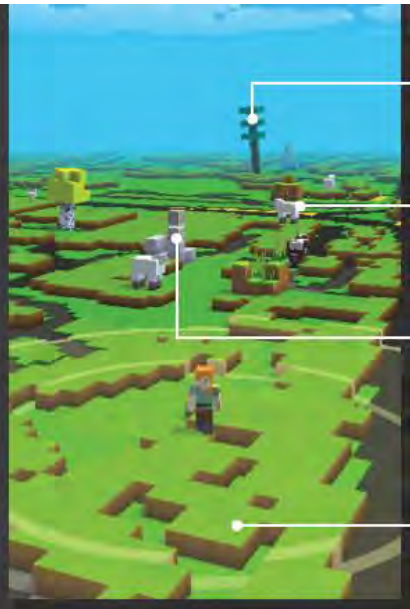
ROADS
Always stay aware of traffic!

BUILDINGS AND OTHER STRUCTURES

OTHER ACCESSIBLE PAVEMENTS AND FOOTPATHS

BEWARE!

While the Minecraft Earth map is based on real maps, always pay attention to what's around you and never rely entirely on it eg. a path shown on the map may have become blocked or overgrown, or may pass through a park that is closed at certain times of day.



TREE
Tap these to gain always handy wood blocks

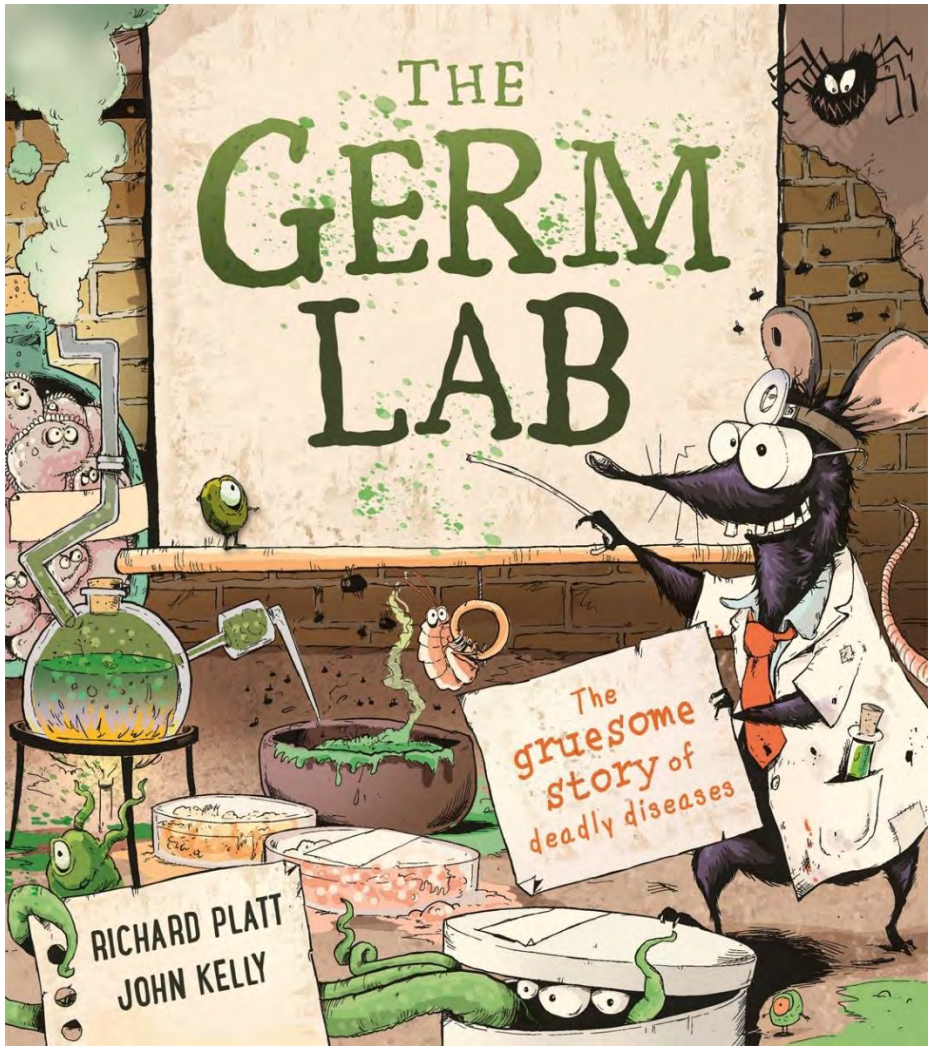
ANIMAL
Tap animal mobs like sheep and chickens to collect them for later use

GREY/GREEN BLOCK
These block piles will provide you with basic building materials

PLAY CIRCLE
You can interact with any object within this circle - walk in the direction of what you want and it'll get a slight glow once you're close enough.

CHEST
Open for a surprise: it could be anything from some wool to some TNT!

But not everything on the map exists in the real world, and that's sort of the point! As you walk around the real world, you'll see different Minecraft objects pop up in the virtual world for you to interact with.



The Germ Lab

Richard Platt

A gallery of bugs and pests tell you everything you want to know about deadly diseases and pox-like pestilence

- Visually appealing and humorous introduction to infections and diseases
- Features case studies of specific epidemics and 'eyewitness' accounts from the rats, fly and creatures who spread diseases
- Illustrated throughout with brilliantly entertaining artwork

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Hardback
April 2020
£12.99

Ages 5 - 7

UNDER THE MICROSCOPE

Germs are invisible to the naked eye. In fact, it was only the invention of the microscope in the 17th century that allowed scientists to see the pesky blighters at all. Microscopes use lenses to magnify germs so that the experts in the lab can identify them.

THE FIRST MICROSCOPE

The first person to see germs was a Dutch scientist called Antonie van Leeuwenhoek (left). He used a thumb-sized microscope with tiny glass beads for lenses. He studied protists and bacteria in the late 1600s, but never guessed they caused disease.

Green algae

A CLOSER LOOK AT PROTISTS

A bit bigger than bacteria, protists are easy to see with a microscope. They like wet places. Some, such as algae (left), feed on light as plants do. Others are more like animals and wiggle around searching for food.

BRING 'EM CLOSER!

A laboratory microscope uses two lenses to make things look much larger than they really are. An 'objective' lens near the bottom enlarges whatever is right underneath it. Then, an 'eyepiece' lens at the top of the microscope magnifies the image again.

BIGGER BACTERIA

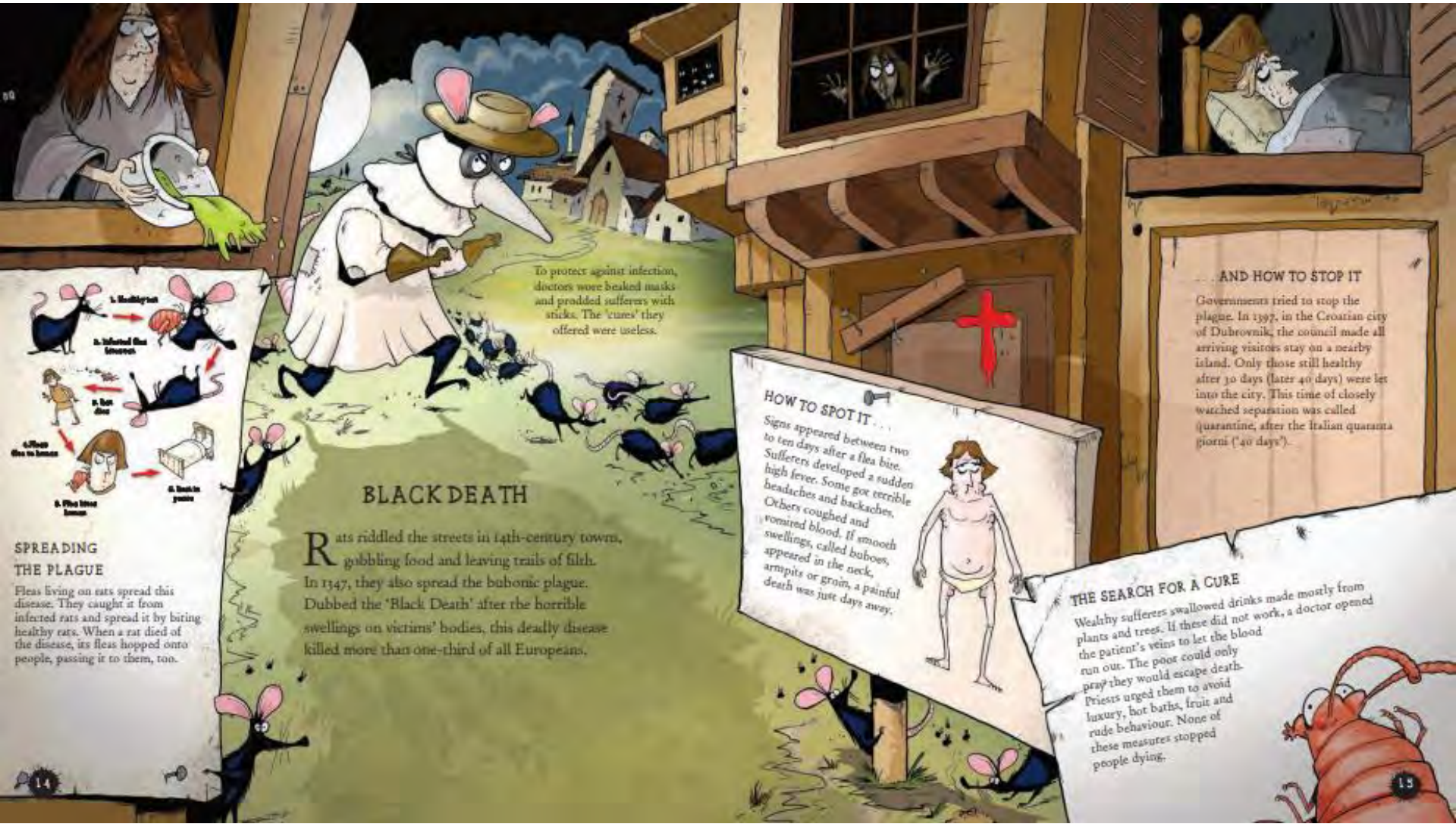
You can see bacteria using a microscope that magnifies 100 times. They breed fast to form vast groups called colonies. Bacteria are found everywhere but only a few spread disease.

MAGNIFYING VIRUSES

Viruses are so small that it takes a powerful electron microscope to show them up. They invade body cells – the 'building blocks' of all living things. Once inside, a virus forces the cell to make more and more identical viruses. This damages the cell, causing disease.

An electron microscope image of influenza virus particles

Ordinary microscopes use light to form enlarged pictures. But viruses are smaller than light beams, so they look fuzzy. Instead, scientists point a beam of electrons – tiny particles – at viruses. An electron microscope (right) can magnify up to two million times.



SPREADING THE PLAGUE

Fleas living on rats spread this disease. They caught it from infected rats and spread it by biting healthy rats. When a rat died of the disease, its fleas hopped onto people, passing it to them, too.

BLACK DEATH

Rats riddled the streets in 14th-century towns, gobbling food and leaving trails of filth. In 1347, they also spread the bubonic plague. Dubbed the 'Black Death' after the horrible swellings on victims' bodies, this deadly disease killed more than one-third of all Europeans.

To protect against infection, doctors wore beaked masks and prodded sufferers with sticks. The 'cures' they offered were useless.

HOW TO SPOT IT . . .

Signs appeared between two to ten days after a flea bite. Sufferers developed a sudden high fever. Some got terrible headaches and backaches. Others coughed and vomited blood. If smooth swellings, called buboes, appeared in the neck, armpits or groin, a painful death was just days away.

. . . AND HOW TO STOP IT

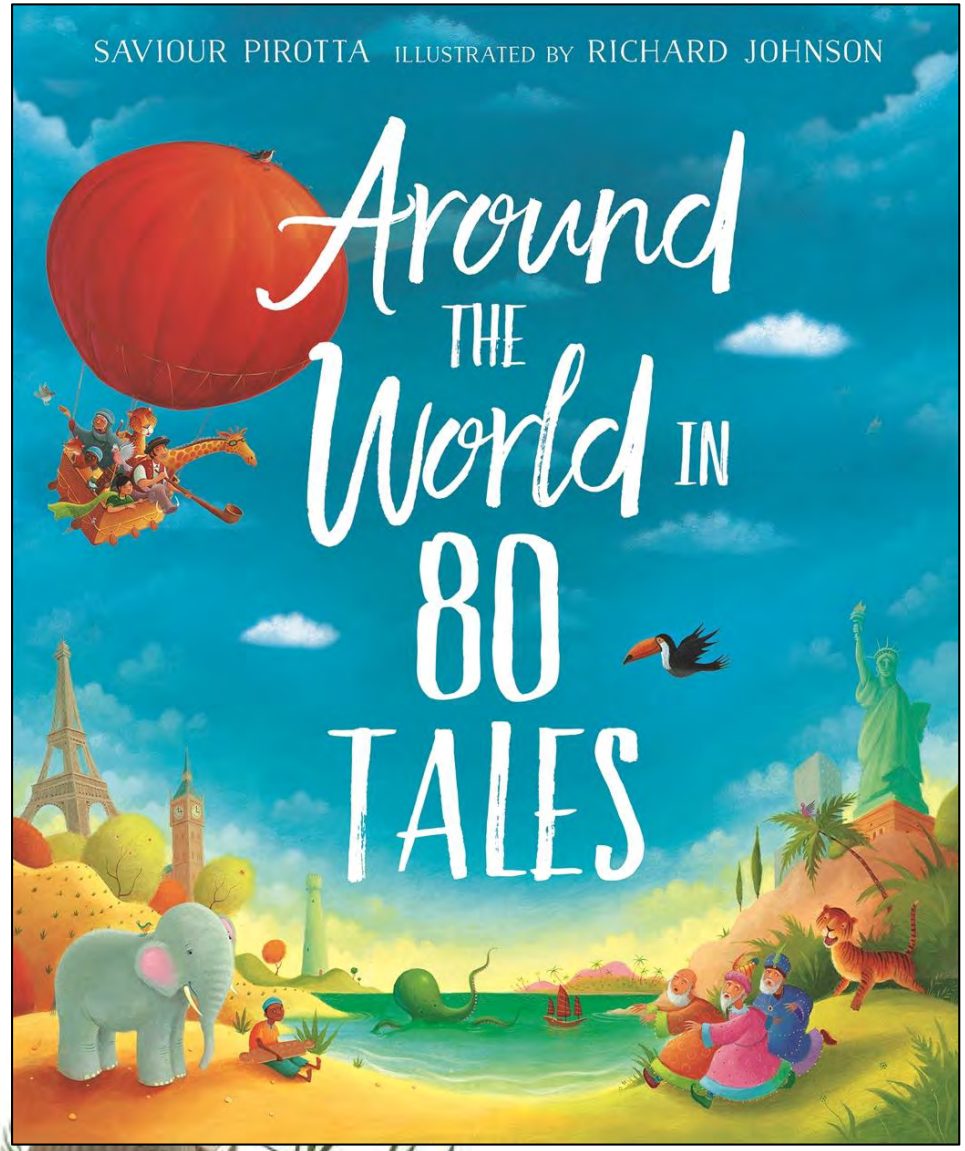
Governments tried to stop the plague. In 1397, in the Croatian city of Dubrovnik, the council made all arriving visitors stay on a nearby island. Only those still healthy after 30 days (later 40 days) were let into the city. This time of closely watched separation was called quarantine, after the Italian quaranta giorni ('40 days').

THE SEARCH FOR A CURE

Wealthy sufferers swallowed drinks made mostly from plants and trees. If these did not work, a doctor opened the patient's veins to let the blood run out. The poor could only pray – they would escape death. Priests urged them to avoid luxury, hot baths, fruit and rude behaviour. None of these measures stopped people dying.

May

PAN MACMILLAN



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Ages 7 - 9

Skuba bought a dead sheep from the butcher's shop. He cut open the sheep and packed its empty stomach with sulfur. Then he sewed it up again, as carefully as if he was handling the king's own shoes.

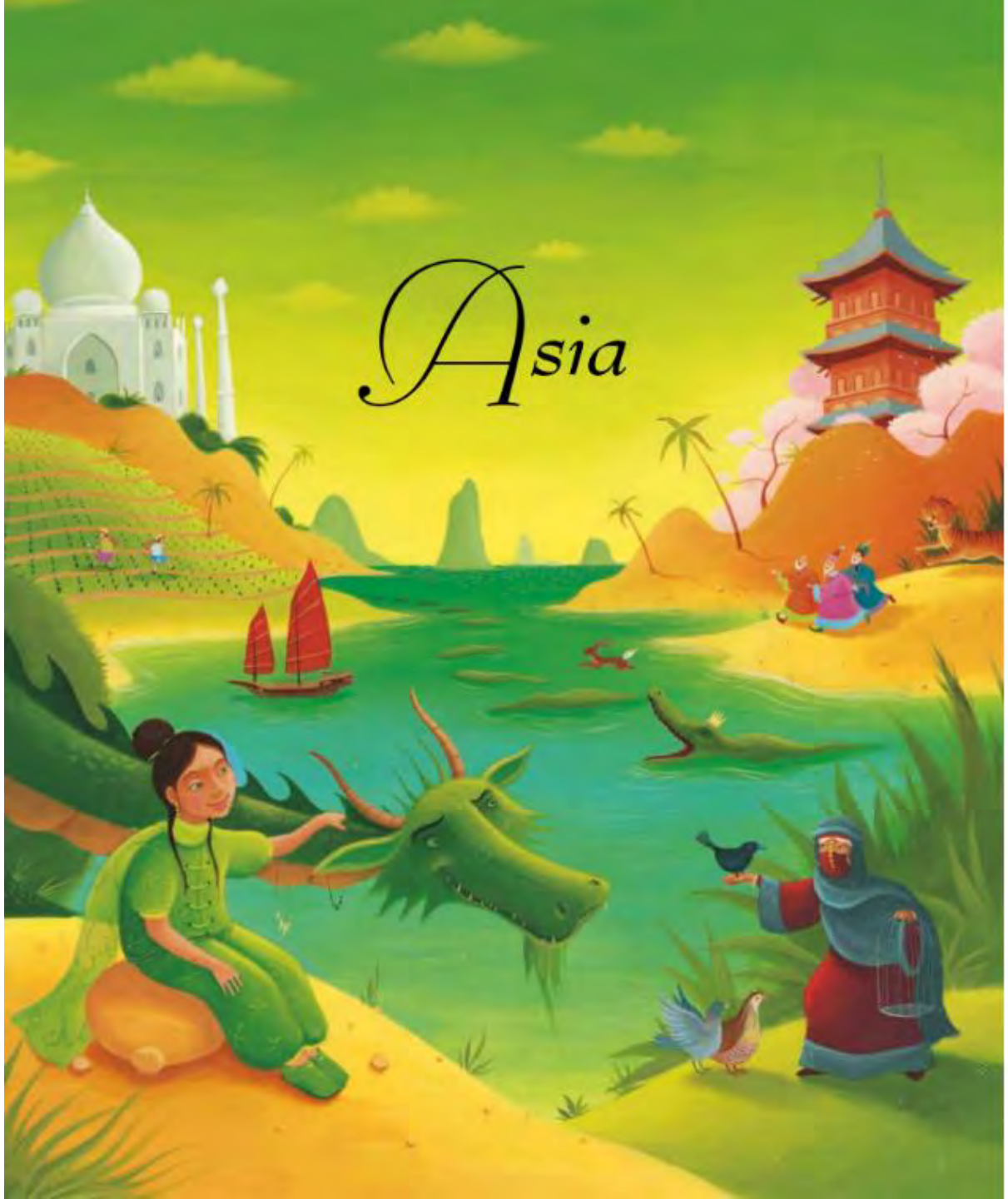
At sunset, the dragon emerged. Its sharp eyes picked out the dead sheep on the grass. It tore the sheep in half with its razor-sharp teeth. There was nothing tastier in the world than fresh meat. But what was this? Something was seeping out of the carcass and into the dragon's throat. Something hot—something burning!

The dragon coughed. Its insides were on fire. It tried to spit out the dead sheep, but it had already slipped down to the dragon's stomach. Water! That would help put out the fire in its belly. The dragon swooped down to the Vistula river. It started drinking as fast as it could.

It was no use. No use at all. No matter how much water the dragon poured down its gullet, it could not put out the fire in its belly. Faster and faster it drank, churning up the water, swallowing fish, mud, and dead gulls. Soon the dragon had swollen to twice its normal size. With a loud pop, it exploded, showering Kraków with rainbow-colored scales.

How the people cheered! They were safe at last.

Skuba and Princess Wanda fell in love and got married soon afterward in the cathedral next to the castle. A statue of the dragon was placed nearby to remind everyone how brave Skuba was. It is still there today, glaring at passersby, its claws raking the air.


Asia

Anansi and the Plantains

A Story from Jamaica

Anansi the spider man had been waiting impatiently for the plantains on his tree to ripen. At last they were ready to pick, but how could he get to them? If he turned into a spider, he would not be able to carry them, but if he remained a man, he could not climb high enough in the tree. What was he going to do?

Anansi went to see Horse. "Help me pick my plantains," he wheedled, "and I'll share them with you."

Horse liked plantains! He came at once to Anansi's garden and kicked the tree with his hind legs. Down came the ripe yellow plantains, falling around the spider man's ears like rain. Anansi rushed around, gathering them up. His mouth was already watering at the thought of eating them.

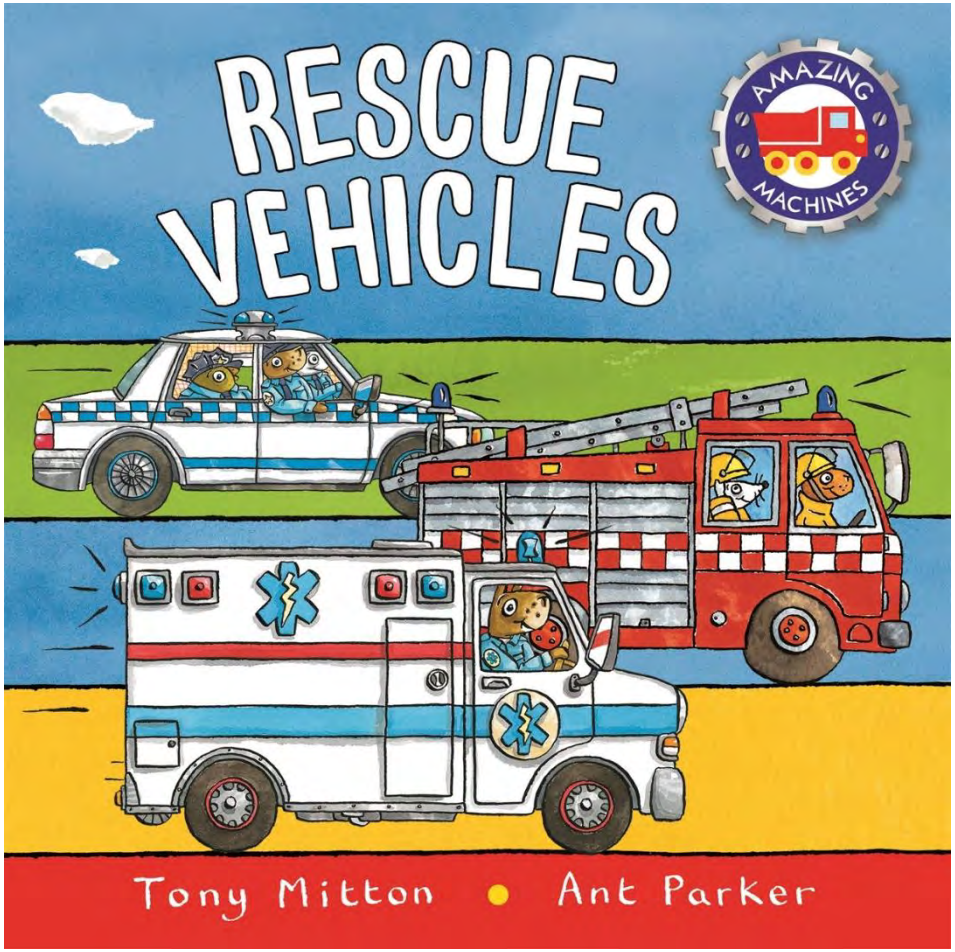
Anansi gathered wood for a fire. He put a pan on the pile of branches, but didn't light them. "I need some matches, Horse. If you run along and buy some from the market, I'll peel and chop the plantains for when you get back."

But Anansi did more than chop the plantains. He lit the fire with flints, fried the fruit, and gobbled up every single one himself. He didn't leave a scrap for Horse.

"I should have known you'd trick me, Anansi," neighed Horse when he came back from the market. "You never

Amazing Machines: Rescue Vehicles

Tony Mitton



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- Part of the Amazing Machines picture storybook series

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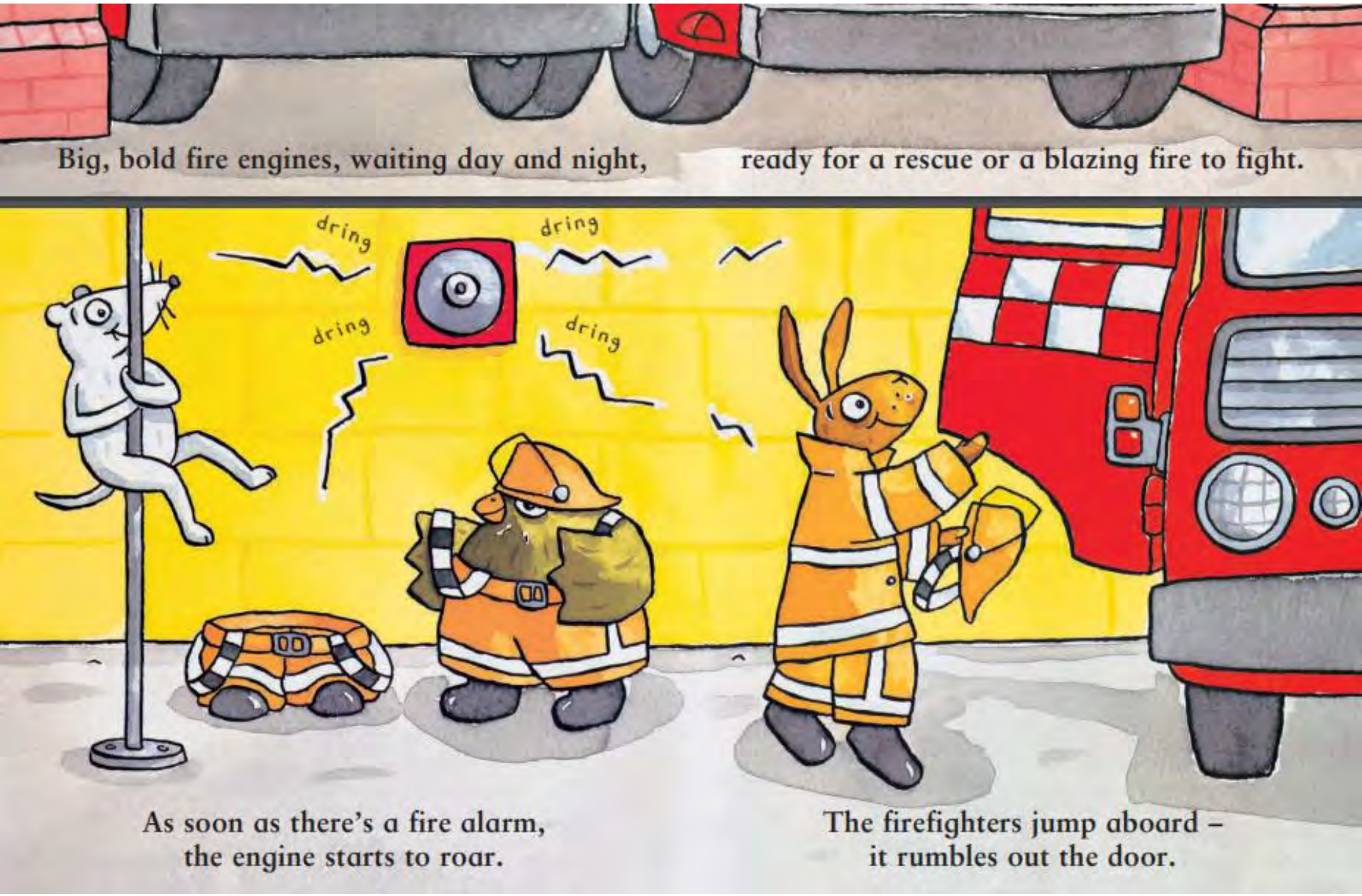
Ages 0 - 5

To clear the road ahead of it,
its siren fills the air.
It tells the other drivers
someone's hurt or needing care.

For extra visibility,
especially at night,
an ambulance's beacons
will flash their vivid lights.



Big, bold fire engines, waiting day and night,

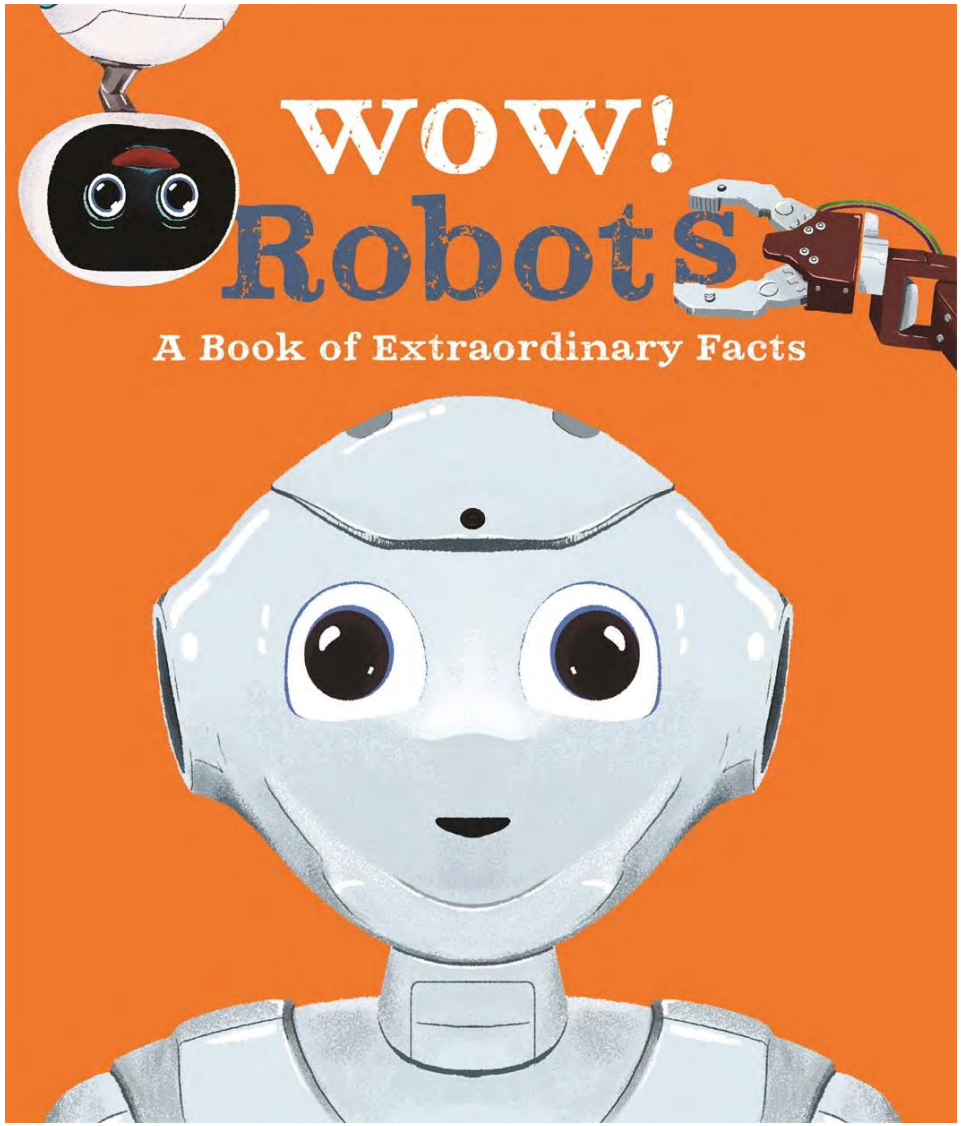
ready for a rescue or a blazing fire to fight.

As soon as there's a fire alarm,
the engine starts to roar.

The firefighters jump aboard –
it rumbles out the door.

June

PAN MACMILLAN



Wow! Robots

Andrea Mills, illustrated by Ste Johnson

Discover all there is to know about robots and say "wow" time and time again

- Discover an amazing world of robots, how they're helpful, the tasks they do, and if robots will really take over the world? Learn surprising facts in this lively and fascinating picture book all about robots

9780753445174
Paperback
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£6.99

Ages 5 - 7

Making waves

Whether diving down deep or scanning the surface, robots are working hard in our oceans.

Spot something slippery in the sea? That's Eelume, the underwater bot that moves like an eel! This superb swimmer fixes off-shore oil rigs. It works in tight, dark places underwater that would be hard even for other robots to get to. Eelume uses specialist tools including camera and video equipment, depending on what the job involves.

Surfer dudes catching waves on the shores off Australia can feel safer knowing Little Ripper Lifesaver is watching over them. This remote-controlled robot flies the skies, scanning the ocean below for sharks. If it sees something dangerous, a warning is given by loudspeaker.

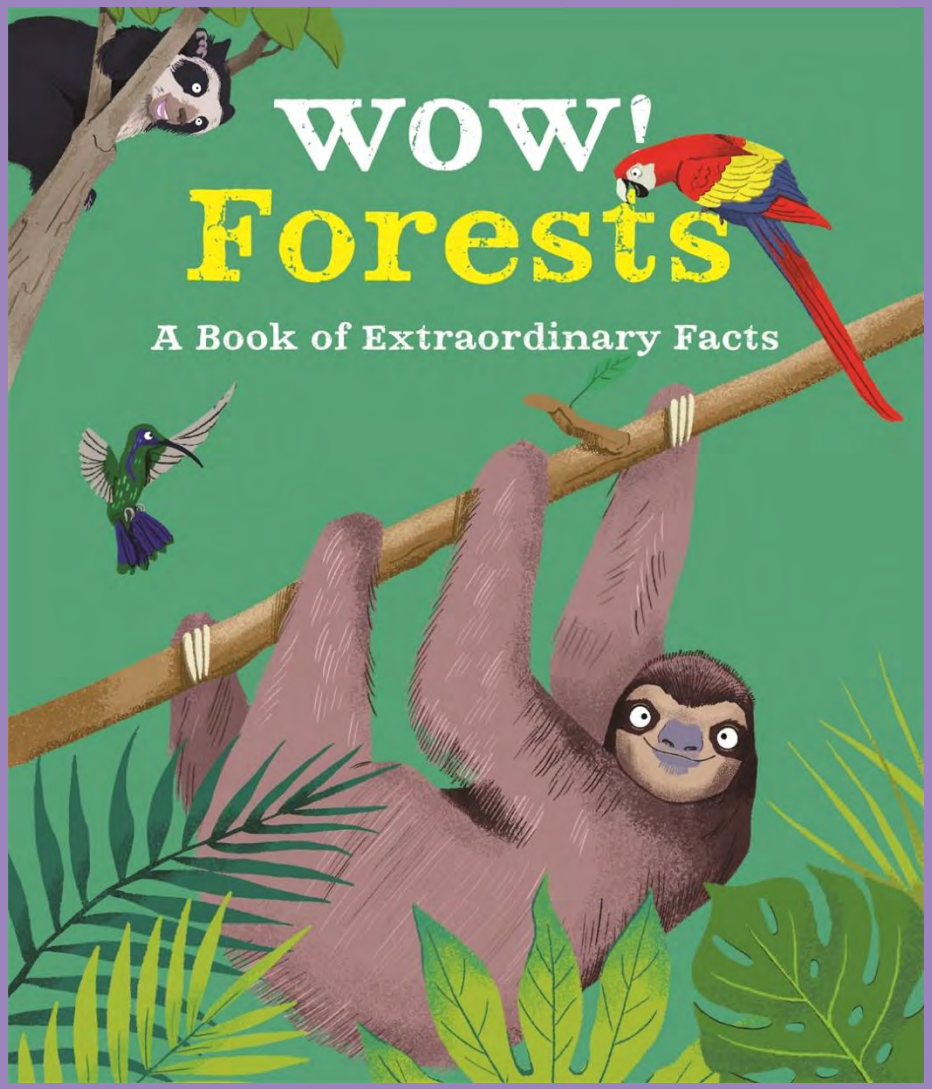
Robot submarines carry out research deep in the oceans. Ships on the surface drop these subs to depths of 6,000 m (19,700 ft) – far deeper than humans can reach. Robot submarines can stay underwater for many months because they have no crew on board.

Wow!

Submarine bot Gavia explored the chilly waters beneath the Antarctic ice.

Scientists use robotic fish to study marine life. Real fish believe this robot fish is just like them. Sea creatures swim up close to it, allowing Soft to take some great shots on its built-in camera.

* Spread from *Wow! Robots*



Wow! Forests

Camilla de la Bedoyere, illustrated by Ste Johnson

Take a trip through all the types of forest and spot forest friends hiding among the trees

- Full of jaw-dropping bite-sized facts

  Fun, brightly coloured illustrations by Ste Johnson

  Intriguing artwork "clues" lead readers through the book, linking information and prompting discussion

  A perfect gift for young children curious about all types of forests and woodland

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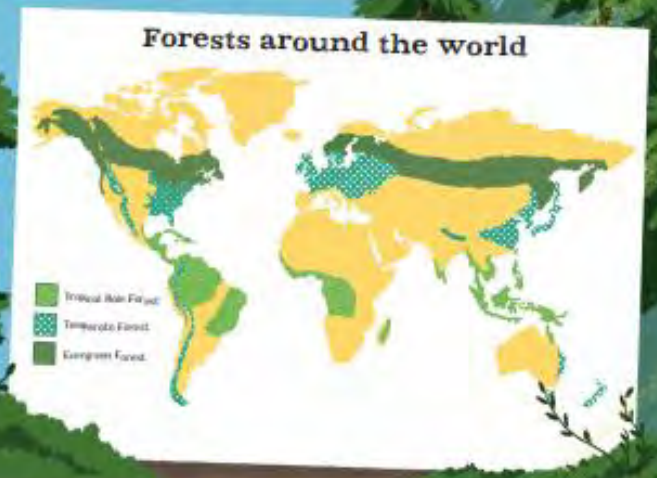
Ages 5 - 7

Terrific trees!

Take a stroll through the forest, and find out just how fabulous it is...

There are up to three trillion (3,000,000,000,000) trees here on planet Earth. Most of them are in forests and woodlands. They cover one-third of Earth's land and are home to all sorts of wildlife.



Trees don't eat. Like other plants, they make their own food. They use sunlight, water and carbon dioxide in the air to do this. It's called photosynthesis, which means 'making with light'.

Wow!

Even the mightiest tree begins life as a seed, and most seeds are no bigger than your thumb.

A tree is a woody plant that grows tall. It has roots, a trunk that is covered in tough bark and branches that bear lots of leaves.

Wow!

The leaves on a raphia palm tree can grow up to 25 metres long. That's three times longer than a bus!

up, up, up!

The biggest trees are giant sequoias. It would take about 20 children holding hands to circle the huge trunks of the oldest trees. Their bark can grow 30 centimetres thick.

what's this?

* Spread from *Wow! Forests*

Evergreen forests

There are ancient giants living in evergreen forests — the oldest and tallest trees alive.

Evergreen forests in cool parts of the world are full of conifer trees that don't lose their leaves in winter. They can cope with snow, cold and wind, and long dry spells when there's little rain.

we're just fine in the snow.

The world's largest tree is bigger than the Statue of Liberty, in New York, USA. It's a coast redwood and is about 116 metres tall. Called Hyperion, this giant might have grown taller, but woodpeckers damaged its top!

Taller than me!

Evergreen forests are home to animals with some cunning defenses ...

Spotted skunks do handstands to spray a foul liquid at an attacker with perfect aim!

keep back!

i'm dead, honestly!

Virginia opossums pretend they are dead when they are attacked. They roll over and stick out their tongues!

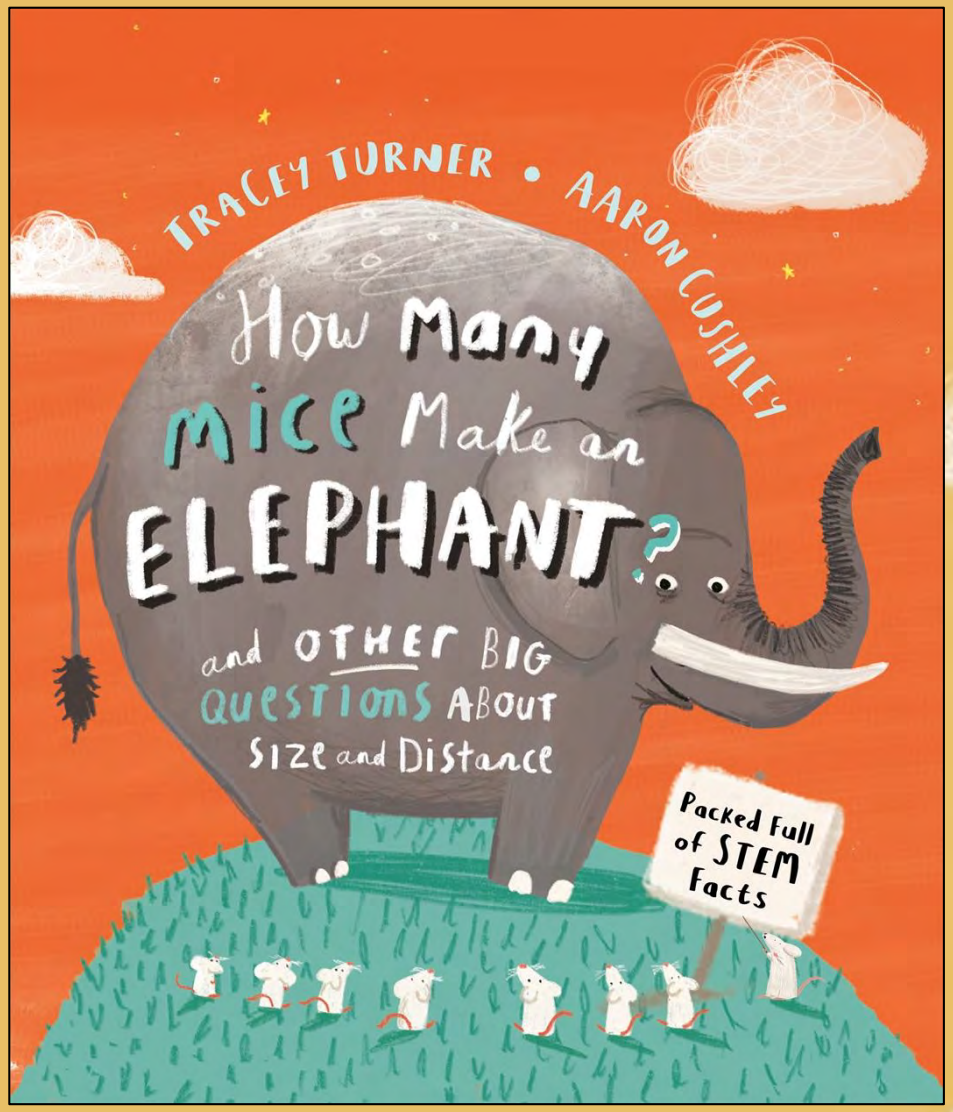
Wow!

There are huge forests of conifer trees in North America and Russia. They are called taiga, or boreal forests. The Russian taiga is so big that it takes a week to travel past it by train!

Wow!

Trees can live to a great age. Some bristlecone pines are at least 4800 years old!

* Spread from *Wow! Forests*



How Many Mice Make an Elephant

Tracey Turner, illustrated by Aaron Cushley

A humorous but informative introduction to size and distance

- How does a skyscraper stay up? This book explains the maths and logic behind this question and many others about animals, the human body, engineering, Earth and space
- Fun approach to the topic of size comparisons
- Packed with STEM-related content

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Ages 5 - 7

How Many Mice Make an ELEPHANT?

You have probably already noticed that elephants are very big and mice are very small. In fact, African elephants are the biggest land animal in the world. But how many mice could you fit into one of these hefty, trumpeting stompers?

This little house mouse takes up around **40 cubic centimetres** of space, or **0.00004 cubic metres**.

This enormous African elephant takes up around **36 million cubic centimetres** of space, or **36 cubic metres**.

TO WORK IT OUT

To work it out, **divide 36 million (36,000,000) by 40**. Or **divide 36 by 0.00004**, depending on whether you want to use cubic metres or cubic centimetres. Either way, the result is the same.

You'd need 900,000 mice to fill up the space of just one elephant!

How big is an elephant?

AVERAGE WEIGHT
around 6 tonnes, or 60,000 grams

AVERAGE HEIGHT
around 3.3 metres

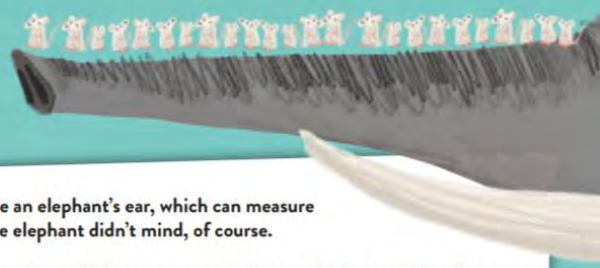
How small is a mouse?

AVERAGE WEIGHT
around 20 grams

AVERAGE LENGTH
around 8.5 cm (body), around 7.5 cm (tail)

An elephant uses its trunk for lots of things, including sniffing, picking things up, digging, sucking up water to drink, sucking up mud or sand for a bath, and giving other elephants a cuddle. The trunk has more than 40,000 muscles to help it do all these jobs. 23 house mice could line up along an African elephant's trunk.

Even though they're tiny, house mice can jump up to 45 cm high. That's like you leaping up to the roof of a house. Elephants can't jump at all – they never have all four feet off the ground at the same time.



You could wrap yourself up inside an elephant's ear, which can measure two metres across - as long as the elephant didn't mind, of course.

There are billions of house mice in the world, but not so many African elephants. Today there are about 415,000 African elephants in the wild, but 100 years ago there were more than three million of them.

HOW MANY KANGAROO HOPS to Cross AUSTRALIA?

Australia is the name of a continent as well as a country. Kangaroos are some of its most famous animals, known for their awesome hopping abilities. If a kangaroo started hopping across the whole of Australia, how many hops would it need to do?

Our red kangaroo covers **7.5 m** in one hop.

The distance across Australia from east to west is roughly **4,000 km**, or **4,000,000 m**.

It would take 533,333 (and a bit) KANGAROO HOPS TO CROSS AUSTRALIA. Maybe lots of kangaroos could do it in a relay.

TO WORK IT OUT

Divide 4,000,000 by 7.5

As well as covering 7.5 m across the ground, a red kangaroo's hop can reach 1.8 m high – it could jump over you with no problem at all. A kangaroo can reach speeds of up to 56 km/h as it bounds along, breaking the speed limit in a built-up area.

The World's Four Widest Countries Measured in Kangaroo Hops

Australia isn't the widest country in the world – Canada is. You could fit more than two Australias, side by side, east to west, across the width of Canada. All the following numbers are just rough estimates. Especially for the kangaroos.

1. **Canada** 1.24 million kangaroo hops (9,360 km wide)
2. **Russia** 1.2 million kangaroo hops (9,000 km wide)
3. **China** 693,000 kangaroo hops (5,200 km wide)
4. **USA** 597,333 kangaroo hops (4,480 km wide)

Marsupials are a type of mammal. After a baby marsupial is born, it lives in its mother's pouch until it's bigger. The red kangaroo is the biggest marsupial of the lot. A baby red kangaroo is only the size of a grape when it's born, but it grows into a whopping great hopper with a body length of up to 1.6 metres, plus a tail that's more than a metre long.

The main bit of Australia is an island, but it also includes other smaller islands too. The biggest is Tasmania, which is 300 km, or 40,000 kangaroo hops, from east to west.

How many flights of stairs to the top of MOUNT EVEREST?

Grab your crampons and an ice pick, because it's time to scale the highest mountain in the world. Obviously, it would be a lot easier if there were stairs to climb to the top, but how many flights would we need?

The flight of stairs in our imaginary house is **2.5 m** high.

Mount Everest is **8,848 m** high.

We would need 3,539 FLIGHTS OF STAIRS (plus a few steps) to climb Mount Everest!

TO WORK IT OUT

Divide 8,848 by 2.5

Here is the highest peak on each continent, along with the number of flights of stairs needed to climb it. Australia's Mount Kosciuszko is just a hill compared to Everest!

1. **ASIA:** Mount Everest 8,848 m (3,539 flights of stairs)
2. **SOUTH AMERICA:** Aconcagua 6,962 m (2,785 flights of stairs)
3. **NORTH AMERICA:** Denali 6,190 m (2,476 flights of stairs)
4. **AFRICA:** Mount Kilimanjaro 5,895 m (2,358 flights of stairs)
5. **EUROPE:** Mount Elbrus 5,642 m (2,257 flights of stairs)
6. **ANTARCTICA:** Vinson Massif 4,892 m (1,957 flights of stairs)
7. **AUSTRALIA:** Mount Kosciuszko 2,228 m (891 flights of stairs)

All five of the world's highest mountains are found in the Himalaya mountain range, which includes more than 50 mountains that are higher than 7,200 metres, and ten over 8,000 metres.

Mount Everest was climbed for the first time in 1953 (at least, the first time it was recorded). Since then there have been more than 7,000 ascents, and there are hundreds more every year.

May and June are the only months that weather allows climbers to reach Everest's summit, and sometimes there's a long queue of mountaineers waiting to get there!

The Himalayas formed when two massive plates in the Earth's crust collided with one another, joining India, which used to be a very big island off the coast of Australia, with Asia. India drifted slowly northwards until it crashed into Asia about 40 to 50 million years ago.

July

PAN MACMILLAN

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Clive Gifford

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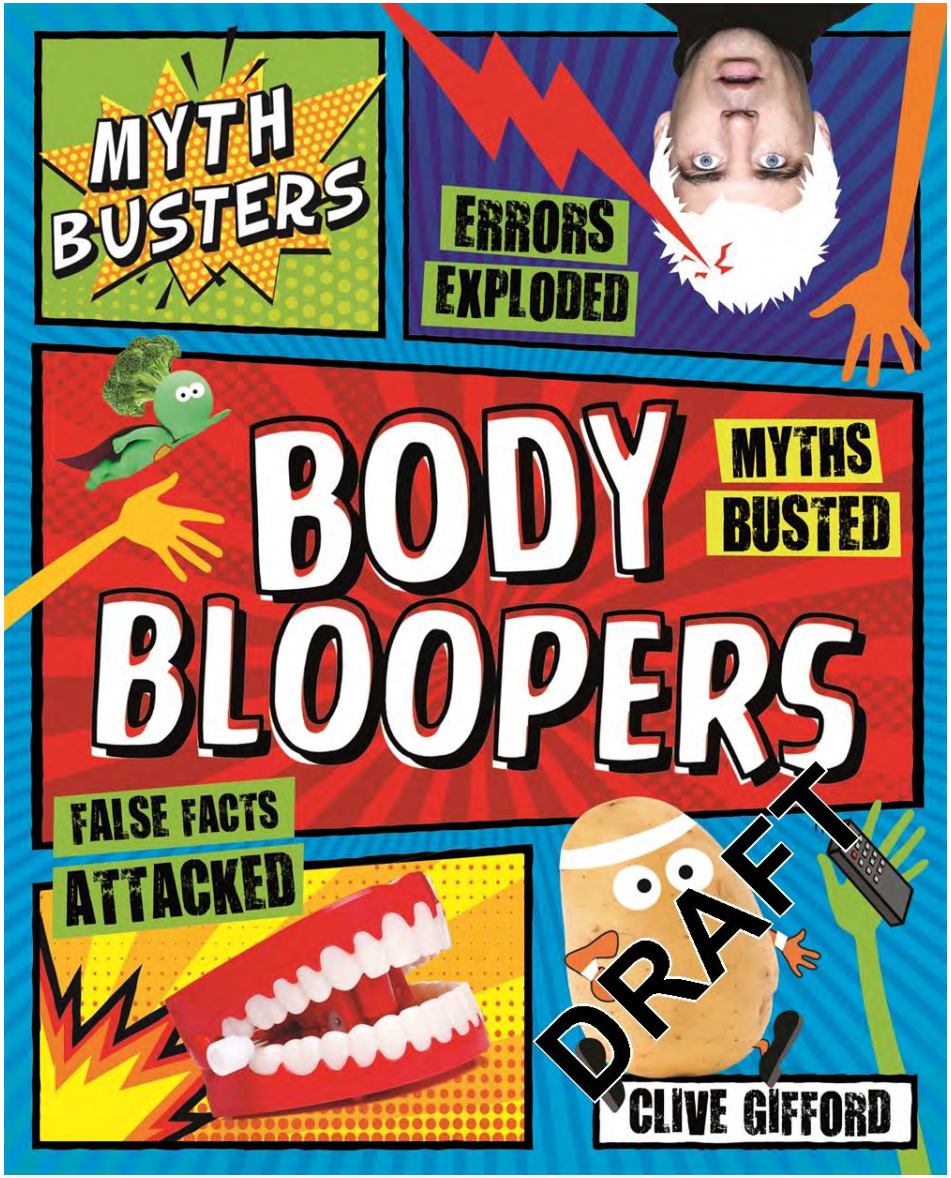
Ages 9 - 11



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Ages 9 - 11

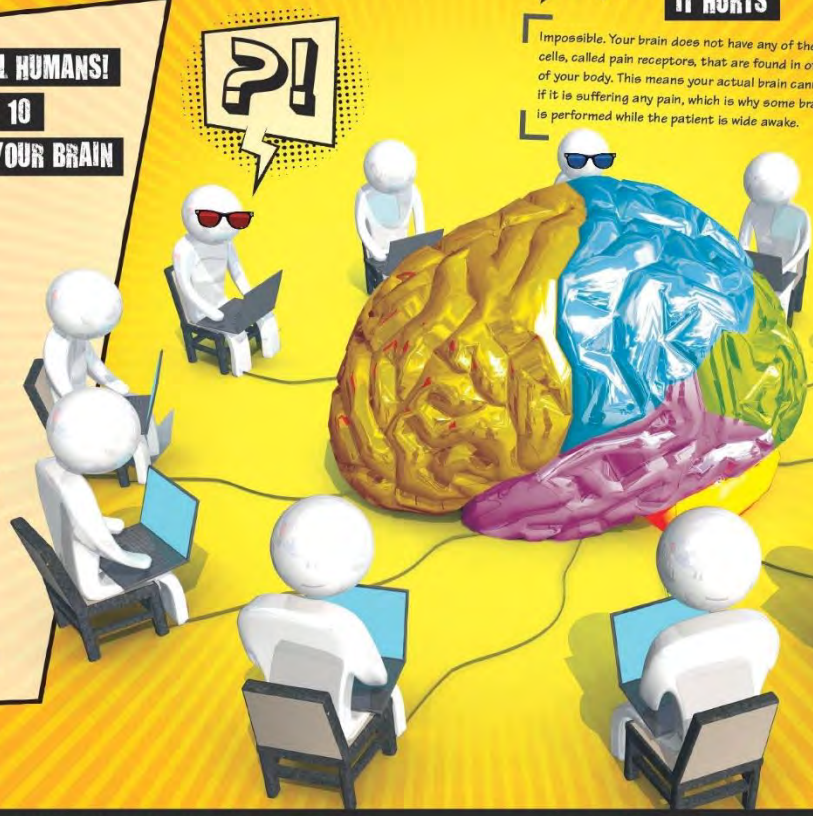
HEADS UP!

ERROR #1

ATTENTION ALL HUMANS! YOU USE ONLY 10 PER CENT OF YOUR BRAIN

Many books, articles on the Internet and even positive-thinking gurus say the same thing... people use only one-tenth of their brain's capacity. "Unleash your potential," they cry. "Just imagine what you could achieve if you DID use the other 90 per cent of your brain!" The only problem with this idea is that it's wrong!

Scientists know that damage to a small part of the brain can lead to a great change in a person's ability to function. This fact applies to most parts of the brain. So, that must mean that most of the brain is important and is used. Science can back this up in several ways. Medical scanners, such as MRI (magnetic resonance imaging) machines, have peered inside the brain and seen much of it active at the same time.



ERROR #2

YOU CAN THINK SO MUCH IT HURTS

Impossible. Your brain does not have any of the nerve cells, called pain receptors, that are found in other parts of your body. This means your actual brain cannot detect if it is suffering any pain, which is why some brain surgery is performed while the patient is wide awake.

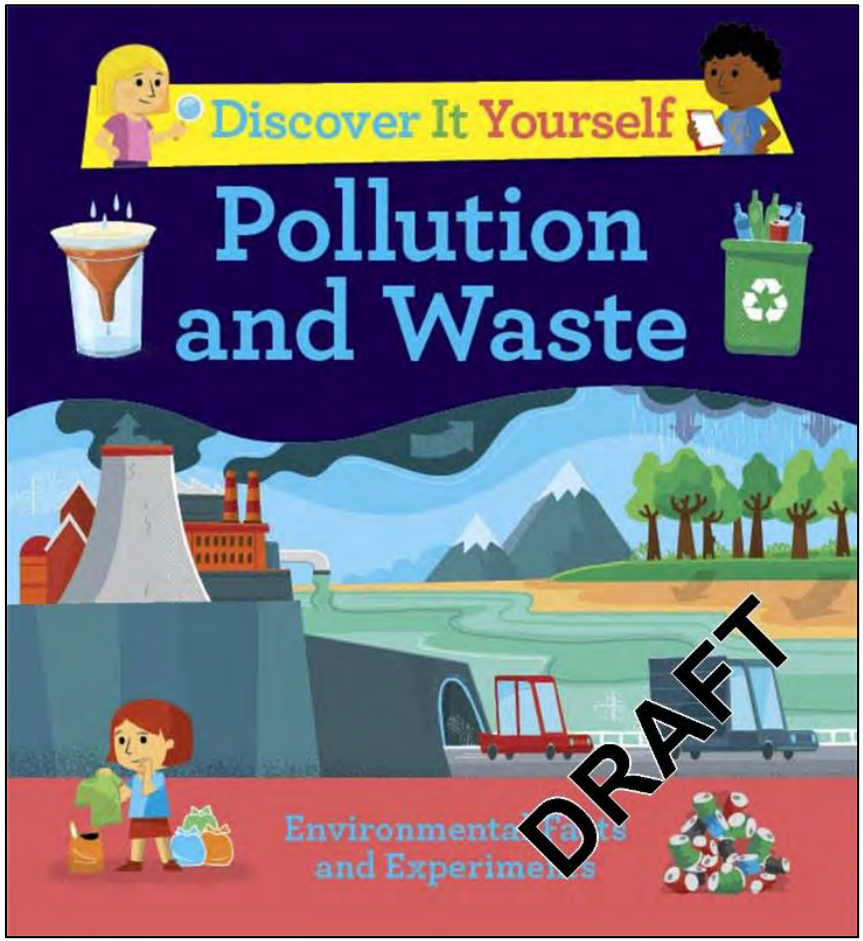
ERROR #3

DIFFERENT PARTS OF THE BRAIN FUNCTION ONE AT A TIME

False! If you eat your dinner as you read these words, then you are using at least six different parts of your brain at once. The occipital lobes help you process what you can see in front of you, your frontal lobes let you think and reason, the parietal lobes allow you to sense and enjoy the taste, smell and texture of the food, and the temporal lobes enable you to understand sounds. Your cerebellum helps you sit, balance and hold this book, while the hippocampus assists you with remembering words. That's not taking into account all the other part of your brain working you breathe and our body parts adds up lot m th per cent!

YOUR BRAIN CONTAINS 100 BILLION NERVE CELLS CALLED NEURONS...

...AND USES UP TO 20 PER CENT OF YO BODY'S ENERGY.



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Sally Morgan

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Ages 0 – 5

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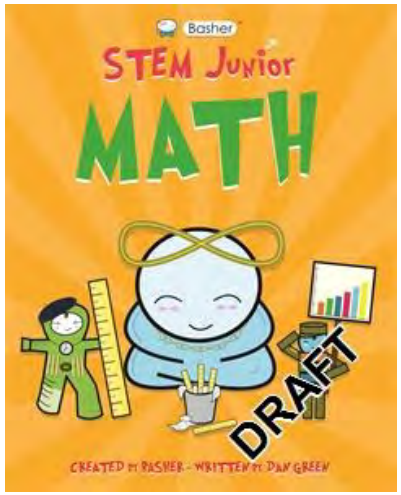

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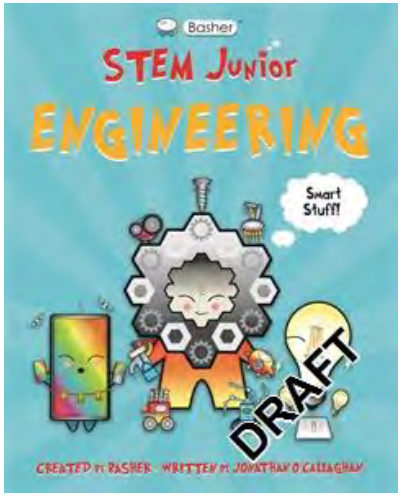

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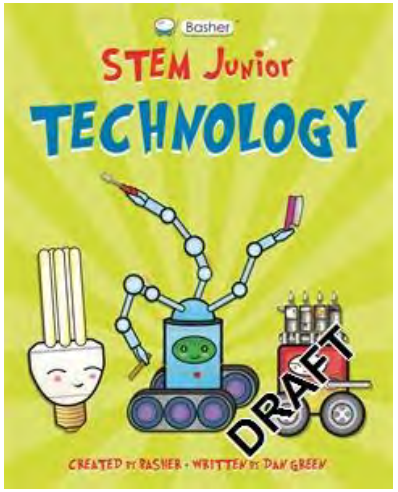

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Ages 7 – 9

Junior STEM: Maths

Infinity

★ Never-ending

THE BIG IDEA

This imaginary number goes on and on and on, without end.

Imagine doing nothing but counting numbers for your entire life. How high would you get? Sure, you'd reach a pretty big number, but no matter how long you lived, or how fast you counted, you'd never get near me! I'm Infinity, bigger than the biggest number you can imagine. I'm so weirdly endless, in medieval times people used to show me as snake biting its tail. The truth is, I'm not a number in the sense that 1, 2, 3 are numbers. You can't use me to measure things or to add up. I'm more of a distant number cousin, but I like to keep that under my hat!

WHO'S WHO

John Wallis was an English mathematician who lived from 1616 to 1703. In 1655, he published a book that explained how infinity works. He was the first person to use the "sideways eight" symbol for infinity (∞) that we still use today.

JARGON BUSTER

Medieval: In the history of Europe, the medieval period (or Middle Ages) lasted from the 5th to the 15th century.

- The ancient Greeks first understood infinity 2000 years ago
- Infinity can be positive and negative
- Infinity divided by infinity isn't "1", as two infinities can be different

Bacteria and Virus

★ Minuscule Marvels

THE BIG IDEA

Tiny types of life and **cells** that inhabit the world around us. They are everywhere, but are too small to see with the naked eye.

Did you know that living things can be really tiny? It's true, and some of the smallest critters are forms of me, Bacteria! Look at me under a microscope and you'll see just one single cell. Pretty basic, huh? I reproduce by making copies of myself. You have bacteria inside you. Some are good for you, while others can cause infections and disease.

My buddy Virus is an infectious type too, but even smaller than me (and, I think, nastier). This tiny group of **molecules** isn't really alive at all, but needs to be inside something else that's living in order to survive. That could be you. . .

- All life on Earth probably began with bacteria 3.5 billion years ago
- Scientists think there are five million trillion trillion bacteria on Earth

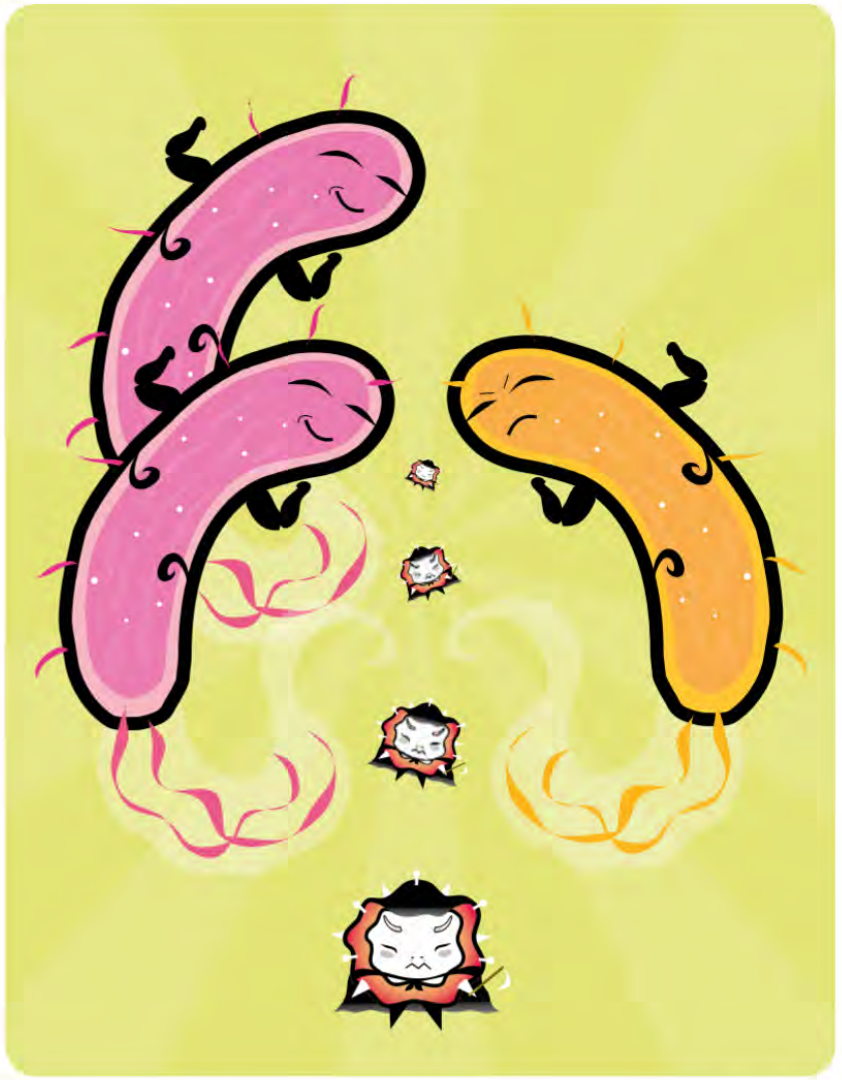
SAY WHAT?

Cell: The smallest basic unit of a plant or animal. All living things are made up of cells.

Molecule: A group of atoms (see page 48) joined together.

SCIENCE NOW

Life on Earth exists in biomes – places that have the right soil, temperature and other conditions to suit certain kinds of life. Viruses and bacteria need biomes, too. One biome they particularly enjoy is inside your stomach.



Steel

★ Super Supporter

THE BIG IDEA

A tough metal that's widely used in the construction of buildings and other, smaller, items.

I'm Steel. An **alloy** of iron and carbon, I have awesome strength. I'm made by heating iron to very high temperatures in a furnace and adding carbon, usually in the form of a rock called **coke**. The mega-hot gloop (molten steel) is cooled and turned into useful sheets of me!

I get about! I pair up with Concrete to build skyscrapers and bridges, but you'll also find me in ships, railway tracks and cars. I even make really small things such as pins and needles! Sure, Concrete is an important invention, but I'm the backbone of modern engineering, have no doubt.

- Steel was first used around 4000 years ago in Asia
- Iron is about 1000 times weaker than steel
- Today, steel is the most widely used metal in the world

SAY WHAT?

Alloy: A metal that is made by mixing two or more types of metal together.
Coke: A hard fuel that's mostly carbon and made when coal or oil is heated up.

TOP ENGINEER

In 1856 English inventor Sir Henry Bessemer found that blowing air through melted iron made it easier to pour. And steel might be strong, but engineer Stephanie Kwolek made something even stronger in the 1960s: kevlar. Five times stronger than steel, it's used in bulletproof vests!

Satellite

★ Awesome Orbiter

THE BIG IDEA

A space-based machine that travels around Earth, gathering information and aiding communication.

Hi, I'm Satellite, and I'm outta this world. No, really! I'm one of those funky machines located way above your head. Out in space, I **orbit** Earth at mega-high speeds. Earth's **gravity** tries to draw me in, but I move so fast that I always stay on my path.

I come in many shapes and sizes. Some are as small as a toaster, while others are bigger than a car! I send signals all over the planet, such as TV shows. I can also take pictures of Earth and even watch the planet's weather. I'm a multi-talented type, that's for sure!

- There are about 5,000 satellites orbiting Earth today
- Most satellites use solar panels to power themselves

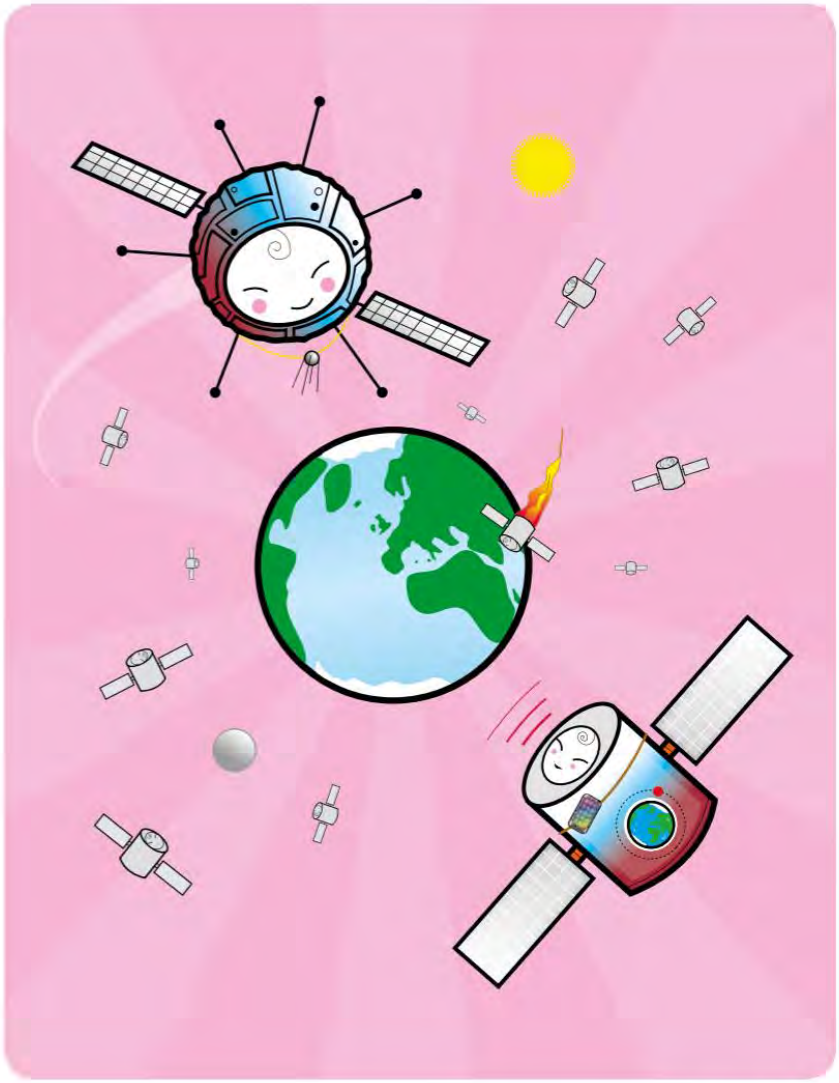
SAY WHAT?

Orbit: The path a satellite takes around a planet.

Gravity: A force that attracts objects towards each other.

AWESOME APPLICATIONS

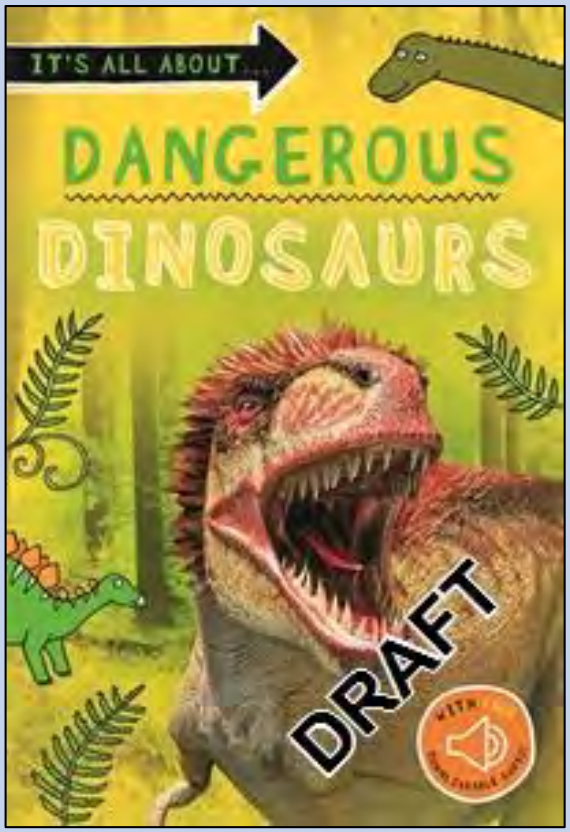
The first satellite was Sputnik 1, launched by the Soviet Union (now Russia) in 1957. It sparked a space race between the United States and the Soviet Union. The US won when it landed men on the moon in 1969!



August

PAN MACMILLAN

It’s all about…



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Ages 7 - 9

Deadly Dinosaurs

Ancient reptiles

Dinosaurs were reptiles that lived between about 230 and 65 million years ago. They were the most important land animals of their time.

FACT...

The long stretch of the Earth's early history is split into three eras, or periods: Triassic, Jurassic and Cretaceous.

Most dinosaurs ate plants, but some were the deadliest meat-eaters the world has ever seen. Some dinosaurs were as long as three houses; others were the size of a chicken.

Triassic era
251–200 million years ago

Jurassic era
200–145 million years ago

Cretaceous era
145–65 million years ago

Deadly Dinosaurs

The king

Tyrannosaurus rex was one of the biggest meat-eaters of its time. It had a massive head and strong jaws that could crush bone.

Tyrannosaurus rex had big powerful legs and could run very fast, but it had very small arms. It would track its prey, then charge at it and grab it in its jaws.

FACT...

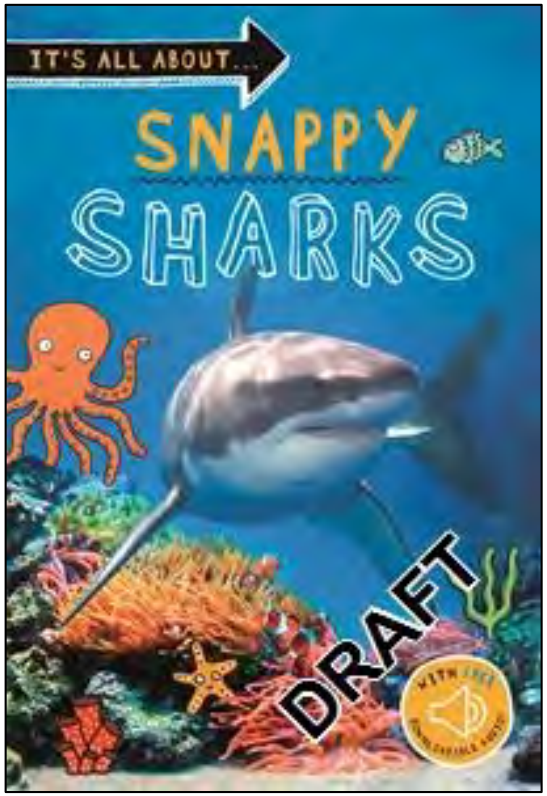
The tooth of a Tyrannosaurus rex has been found buried in the back of a plant-eating Hadrosaur.

SPOTLIGHT: Tyrannosaurus rex

Size:	about 12 m long
Habitat:	warm forests, near rivers and swamps
Food:	meat
Lived:	85–65 million years ago

This Tyrannosaurus rex tooth is 30 centimetres long.

It’s all about...



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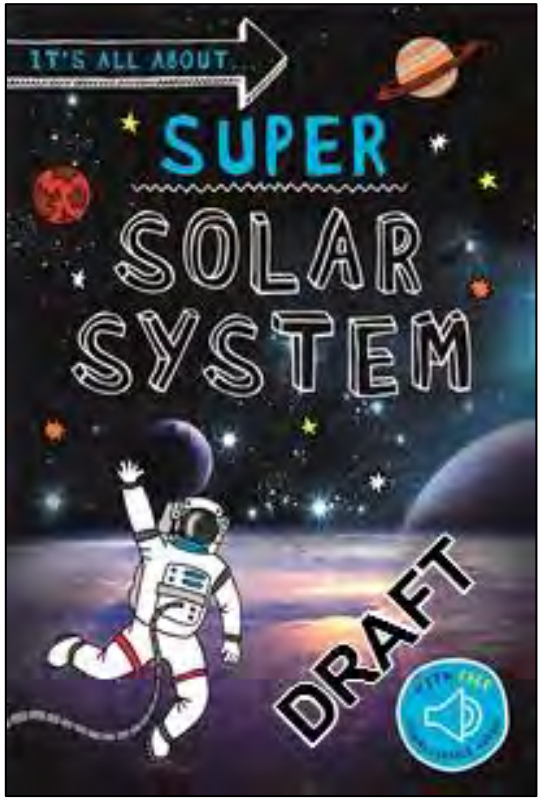

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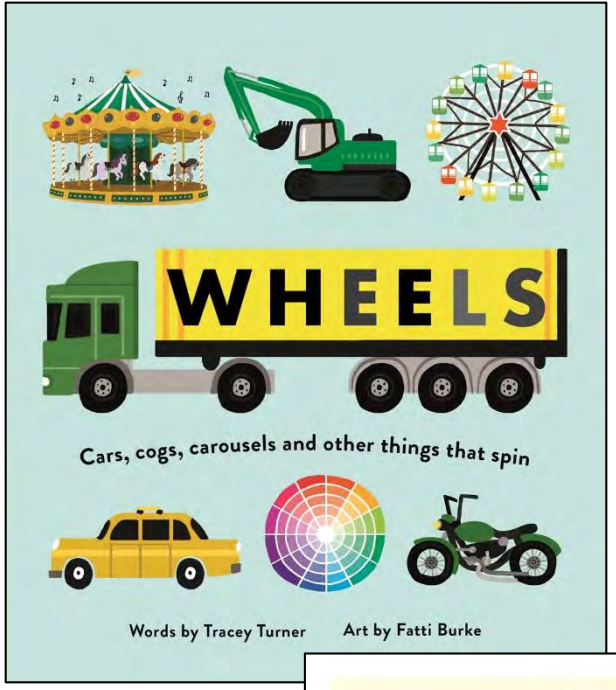
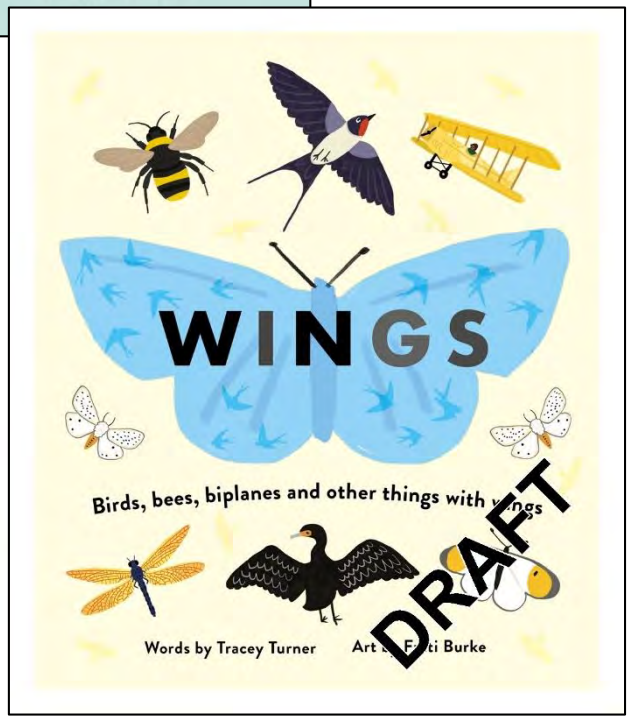
Ages 7 - 9





Wheels & Wings

Tracey Turner, illustrated by Fatti Burke

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- An intriguing approach to a topic not usually covered in a standalone book

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Ages 7 – 9

Steam Cars to Driverless Cars

Wheels were doing an excellent job of getting people around. But horses can only go so far and so fast, and people began to think of other ways to get wheels moving.

1 The first powered cart was built by Nicolas-Joseph Cugnot in 1769. It was powered by steam, so it was enormous, heavy, and slow.

2 Some early cars used electric motors, like this one made by Thomas Parker in 1884.

3 The internal combustion engine, fueled by gasoline or diesel, became the most popular way to power cars. The first motor car with an engine was made by German engineer Karl Benz. His wife and business partner, Bertha Benz, made the world's first long-distance car journey in it.

During the twentieth century, cars began to sell in their millions after Henry Ford's factory in Michigan made cheap, easy-to-run cars. His most famous was the Model T.

4

5 In the middle of the twentieth century, gasoline was cheap and there was plenty of it, so cars became huge and extravagant.

6 Burning gasoline and diesel pollutes the air and contributes to climate change, so companies have started to make electric cars again. The idea is that they're powered by electricity made using energy from the Sun, or in other sustainable ways.

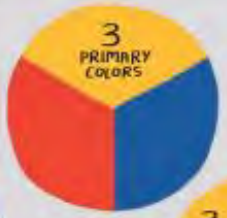
All of these cars need a driver. But eventually cars that can drive themselves will take over our roads. They'll be much safer than cars with human drivers.

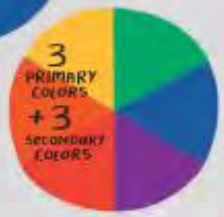
Color Wheels

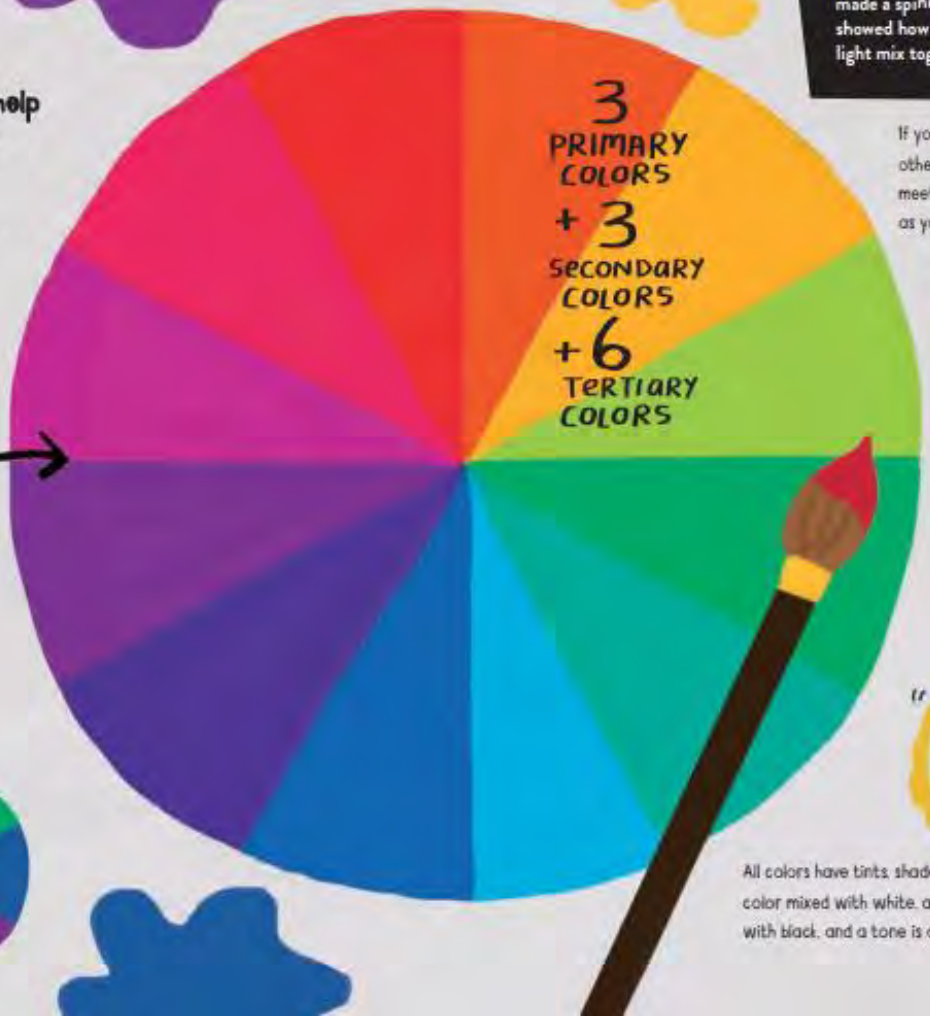
There's one type of wheel that can help you decorate your bedroom, paint a picture, or decide what to wear.

Artists and designers use color wheels to help choose which colors to use in their work. Most color wheels have twelve sections, with a different color in each one. There are three primary colors—normally red, yellow, and blue—which can't be made from any other color. Secondary and tertiary colors are made by mixing other colors together.

The color wheel can be divided into "warm" (top) and "cool" (bottom) colors.





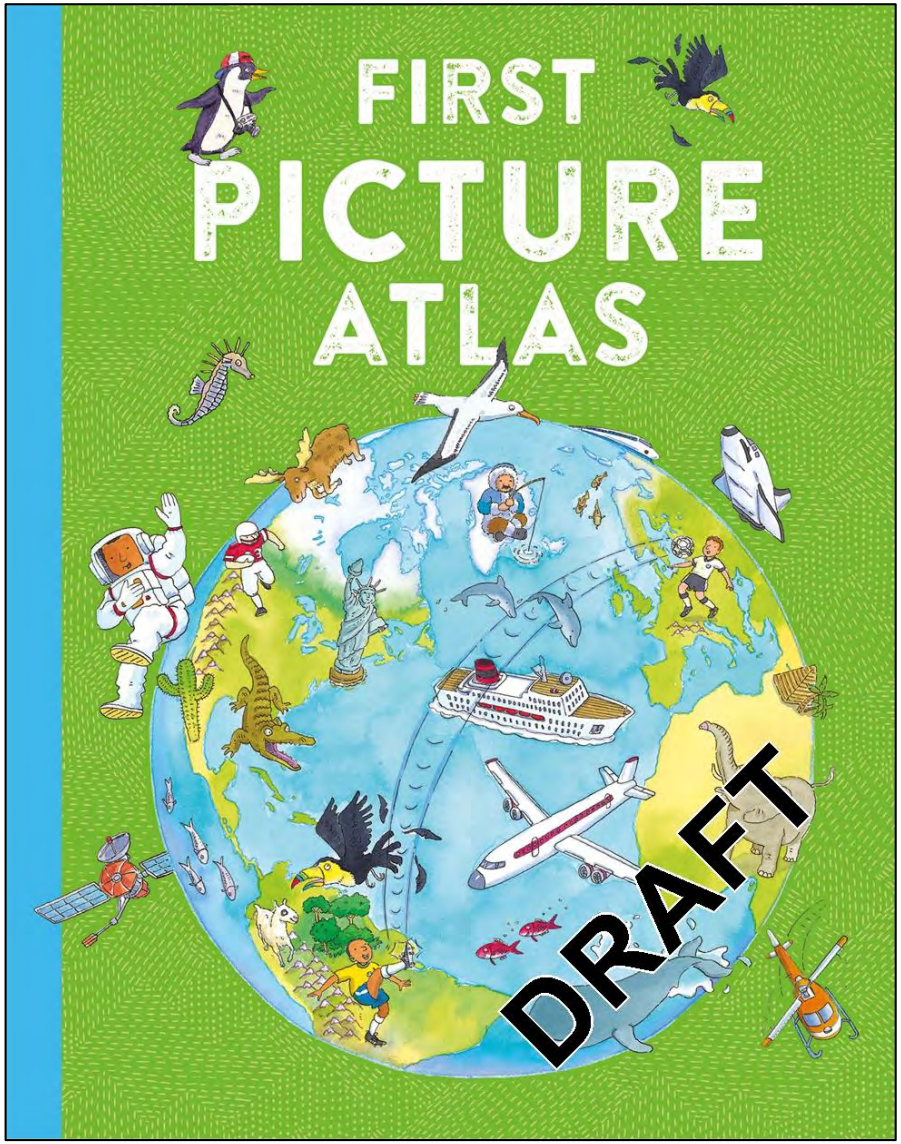


The famous scientist Isaac Newton made a spinning color wheel that showed how different colors of light mix together.

If you pick two colors on the wheel that are next to each other, mix them together, and paint where the two colors meet, you'll get an in-between color. You can make as many as you like—if you have a big enough wheel!

Colors opposite one another on the wheel make the biggest contrast—useful when you want to make words or pictures stand out. Other good color combinations are any three evenly spaced colors, or two colors next to one another on the wheel with the two colors opposite them.

All colors have tints, shades, and tones: a tint is a color mixed with white, a shade is a color mixed with black, and a tone is a color mixed with gray.



First Picture Atlas

Debbie Chancellor

The essential look-and-find first atlas for today's young readers

- A fully updated starter atlas packed with colourful, easy-to-understand maps and informative text
- Cute passport bookmark links with look-and-find activities
- Introduces children to important map concepts such as grids and scales
- Major physical features and political divisions are shown

9780753445969
Hardback
August 2020
£12.99

Ages 5 - 7

WOODLAND

Trees that lose their leaves in the winter are called deciduous. Woods of deciduous trees, like this one in Europe, are home to many different animals, birds, and insects. Each woodland creature has a special job to do, such as spreading seeds.

Green woodpecker

Tawny owl

Long-eared bat

In fall, the **gray squirrel** buries food underground. It digs it up again in the winter.

Only the male **blackbird** is black– the female is brown. Blackbirds eat insects, worms, and berries.

A **robin** fights other robins in order to protect its territory. It will even attack its own reflection!

Garden spider

Red admiral butterfly

Badger

The **garden snail** retreats into its shell when the weather is dry. It can then live for several months without water.

Common shrew

The **adder** likes to bask in the sun in woodland clearings.

The **red fox** usually hunts at night. It eats fruits and berries as well as small forest creatures.

Wood mouse

The **hedgehog** is usually active at night. During the day it curls into a ball to sleep.

Earthworm

Wood lice


A
B
C
D
E
F
1
2
3
4
AUSTRALIA AND NEW ZEALAND
Some animals that live in this part of the world are not found anywhere else, such as the strange duck-billed platypus of Australia and the flightless kiwi of New Zealand. Animal farming is a big industry in Australia and New Zealand. There are many more sheep than people in both of these countries.
NORTHERN TERRITORY
AUSTRALIA
WESTERN AUSTRALIA
SOUTH AUSTRALIA
QUEENSLAND
NEW SOUTH WALES
VICTORIA
TASMANIA
Great Sandy Desert
Great Barrier Reef
Great Australian Bight
Pacific Ocean
Tasman Sea
NEW ZEALAND
NORTH ISLAND
SOUTH ISLAND
Blacktip reef shark
Butterfly fish
Blue-ringed octopus
Frilled lizard
Red kangaroo
Dingo
Koala
Spiny anteater
Sheep
Duck-billed platypus
Thorny devil
Kookaburra
Parma wallaby
Southern hairy-nosed wombat
Western brush wallaby
Blue-tongued skink
Great white shark
Sea dragon
Emu
Southern right whale
Tasmanian devil
Murray
Australian Capital Territory
Crown of thorns starfish
Scorpion fish
Kiwi
Long-tailed bat
New Zealand sea lion
0
1000km
0
500 miles
The red kangaroo hops across the grassy plains of Australia at up to 37 miles (60 kilometers) per hour. It keeps its balance by stretching out its long tail.
Can you find one on the map?
38
39

September

PAN MACMILLAN

Discover It Yourself: Garbage and Recycling & Energy and Power

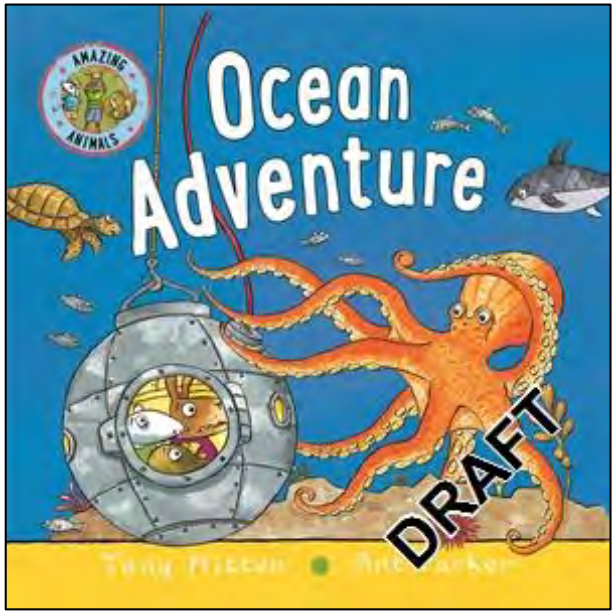
The Discover It Yourself series lets children explore STEM topics in a practical and fun way, using materials in the home

- A focus on STEM topics
- Encourages scientific investigation and discovery
- *Energy and Power* teaches kids how to make a periscope, a rainbow, a sound cannon, some musical instruments and much more
- *Garbage and Recycling* shows readers how to sort rubbish for recycling, collect some animal decomposers, build their own compost heap and much more

Garbage and Recycling	Energy and Power
9780753445525	9780753445532
Paperback	Paperback
September 2020	September 2020
£5.99	£5.99

Ages 7 - 9

Amazing Animals



Ocean Adventures

9780753445938

Board Book

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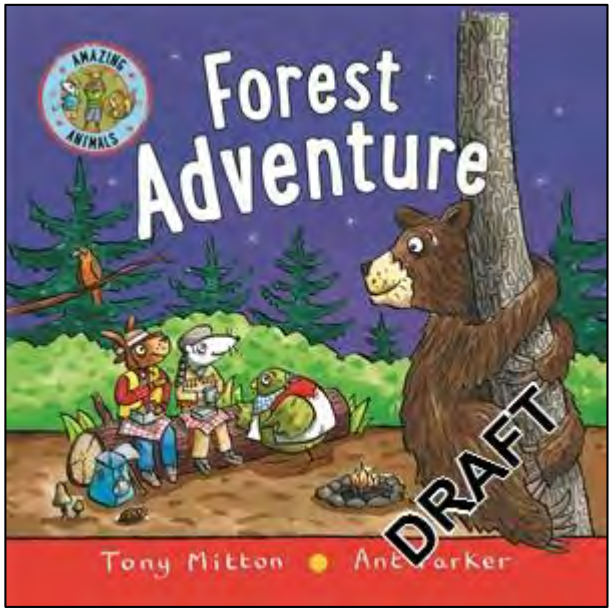
£4.99



Forest Adventure

9780753445945

Board Book

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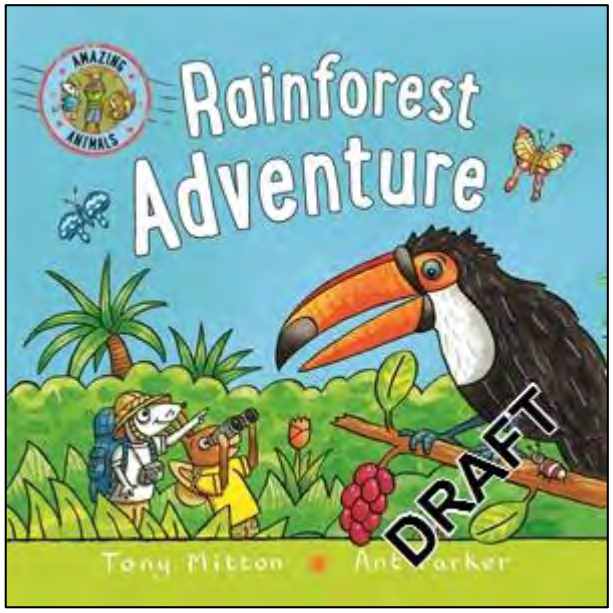
£4.99



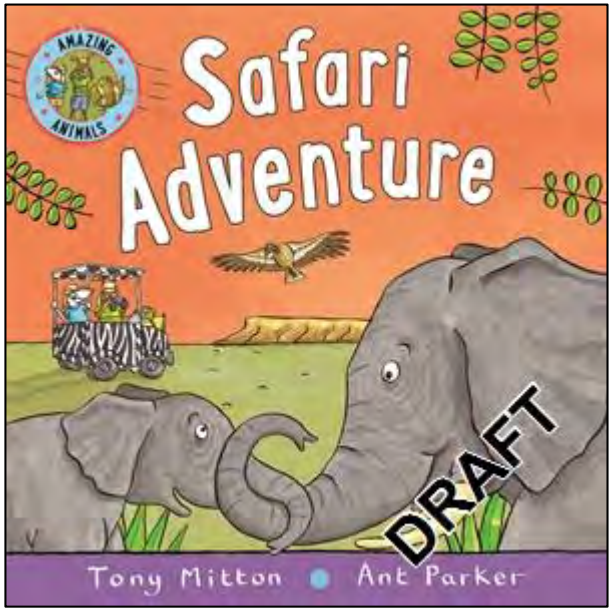
Rain Forest Adventure

9780753445952

Board Book

September 2020

£4.99



Safari Adventure

9780753445921

Board Book

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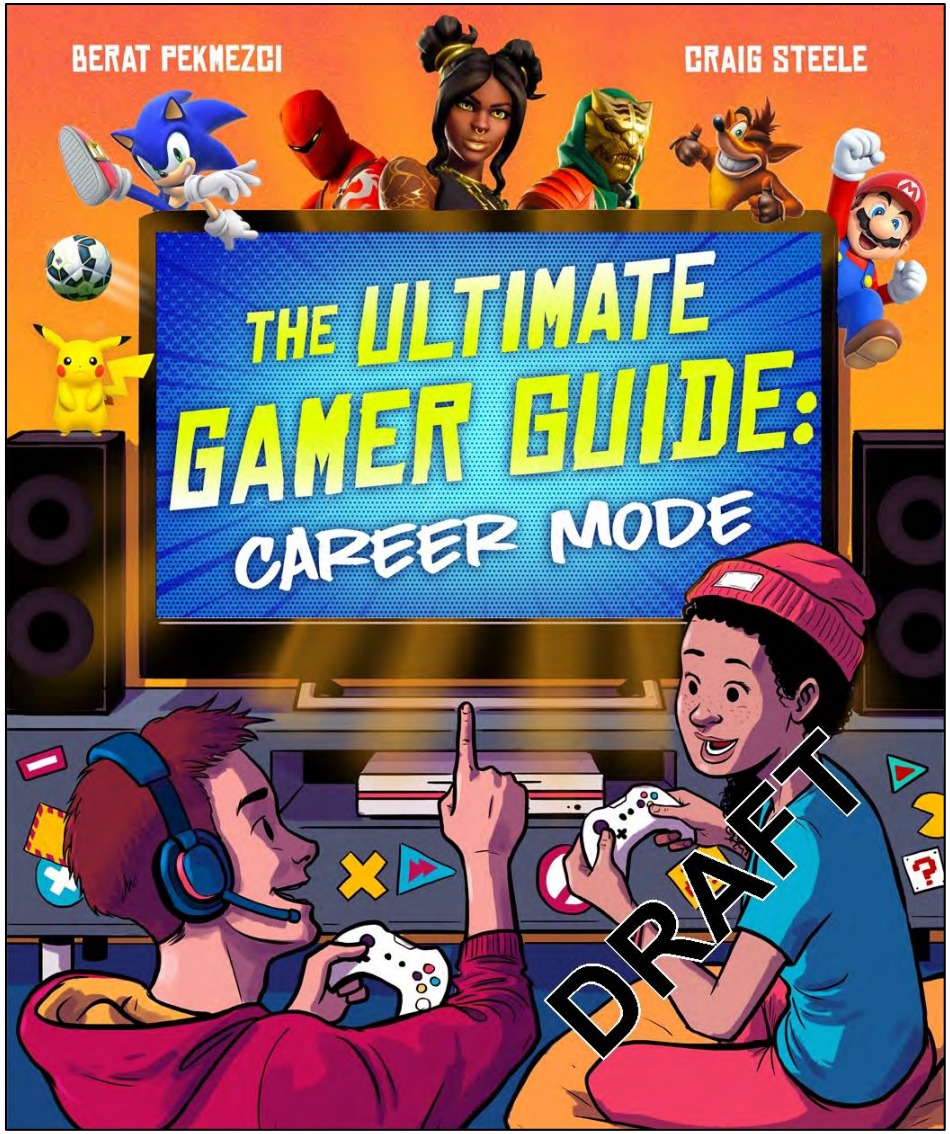
£4.99

Ages 7 - 9



Ultimate Gamer: Career Mode

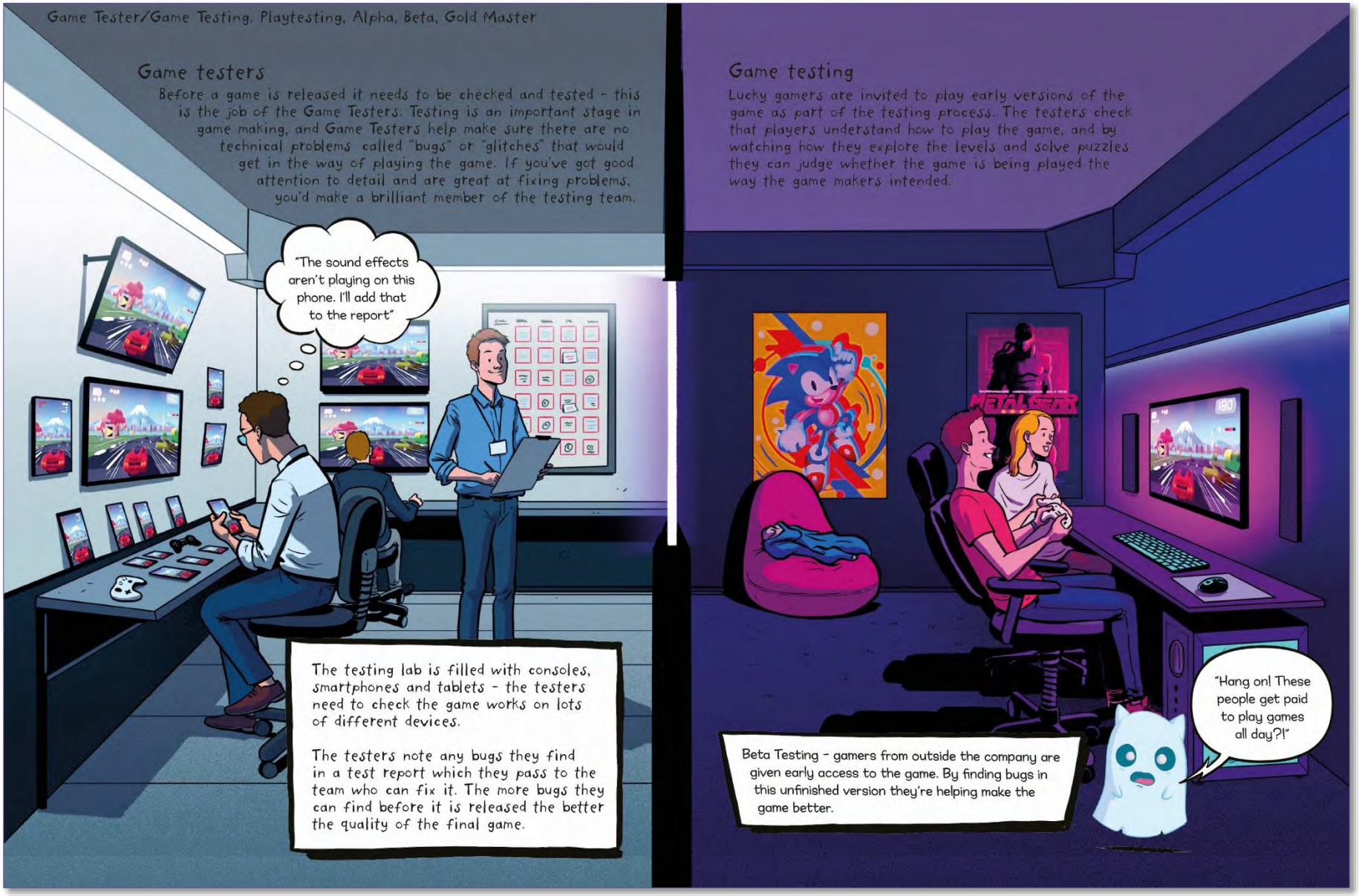
Craig Steele, illustrated by Berat Pekmezci

Get levels ahead as a game dev, Twitch streamer or pro player in *The Ultimate Gamer Guide: Career Mode*

- Focuses on careers in gaming and the wider gaming community - not usually covered in detail in other gaming books
- Taps into the gaming industry valued at $137.9 billion in 2018
- 2.3 billion gamers in the world: 30% are children

9780753445976
Paperback
September 2020
£7.99

Ages 9 - 11



Sample spread

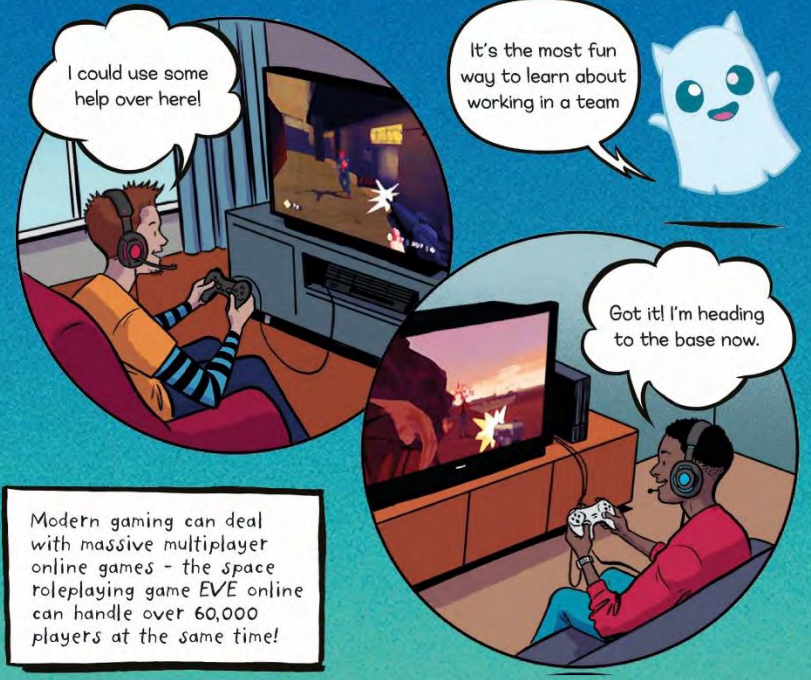
Player 2 has entered the game

Part of the fun of gaming is playing with friends. It's not often you get to take on a zombie apocalypse with your mates, but gaming lets you do that. Yeah, it might cause a few arguments sometimes, but nothing beats some friendly competition. Game makers need to think about how their games can make the most of multiple players.

Video games have always been a social experience. Gamers would hang around arcades, feeding the machines with their pocket money. Although the games might seem simple compared to today's blockbusters, there was pride in cheering on your pals, and being good enough to get a top score and seeing your name on the leaderboard. Even today's games still use online leaderboards, letting gamers boast about their wins.

Couch play

When game consoles arrived this turned into "couch play" - where you'd sit beside someone and play the game at home. Game companies had to find innovative ways to allow new "multiplayer modes". Turn based games relied on you passing the controller. Split screens divided up the action. Some game makers even designed extra hardware. For example, the PlayStation Multitap adaptor allowed up to 8 people to plug in...that's a lot of wires!



Modern gaming can deal with massive multiplayer online games - the space roleplaying game *EVE* online can handle over 60,000 players at the same time!

We've got more ways to share games: chat servers for talking with teammates, and trophies to post on social media. Some controllers even have "share" buttons built in, so you can upload gameplay videos with the touch of a button.

Sample spread


BATMAN
LEAGUE OF LEGENDS
SONIC
FORTNITE

December

Animal Babies Around the House

Meet the cutest baby animals about the house in this interactive guessing game book

- Meet fluffy kittens, snuffling guinea pigs, and bouncing puppies in this super cute interactive guessing game book about baby animals around the house
- Interactive element encourages discussion between parent and child. Using the picture clues, can you guess the baby animal and its mummy?
- An early introduction to species and habitats for pre-schoolers

9780753446317
Board Book
December 2020
£5.99

Ages 0 - 5

Meow!
I have four
furry paws.

Who is my
mummy?


My mummy
is a cat.
I am her
kitten.

Animal Babies on the Farm

Meet the cutest baby animals about the house in this interactive guessing game book

- Meet pink piglets, chirpy chicks, and leggy lambs in this super cute interactive guessing game book about baby animals on the farm
- Interactive element encourages discussion between parent and child. Using the picture clues, can you guess the baby animal and its mummy?
- An early introduction to species and habitats for pre-schoolers

9780753446218
Board Book
December 2020
£5.99

Ages 0 - 5

Moo!

I live in a green grassy field.

Who is my mummy?


My mummy
is a cow.
I am her
calf.

Animal Babies in Polar Lands

Meet the cutest baby animals in polar lands in this interactive guessing game book

- Meet big-eyed seal pups, pecking penguins, and fluffy polar bear cubs in this supercute interactive guessing game book about baby animals in polar lands
- Interactive element encourages discussion between parent and child. Using the picture clues, can you guess the baby animal and its mummy?
- An early introduction to species and habitats for pre-schoolers

9780753446331
Board Book
December 2020
£5.99

Ages 0 - 5

Howl!
I sniff food with
my black nose.

Who is my mummy?


My mummy
is a wolf.
I am her cub.

Animal Babies in the Forest

Meet the cutest baby animals in rainforests in this interactive guessing game book

- Meet mischievous monkeys, colourful frogs, and slow-moving sloths in this super-cute interactive guessing game book about baby animals in rain forests
- Interactive element encourages discussion between parent and child. Using the picture clues, can you guess the baby animal and its mummy?
- An early introduction to species and habitats for pre-schoolers

9780753446324
Board Book
December 2020
£5.99

Ages 0 - 5

Huh! Huh! Huh!
I have black hair and
large, brown eyes.

Who is my mummy?


My mummy
is a gorilla.
I am her baby.

January

PAN MACMILLAN

It’s all about... Beastly Bugs
& It’s all about... Riotous Rainforests

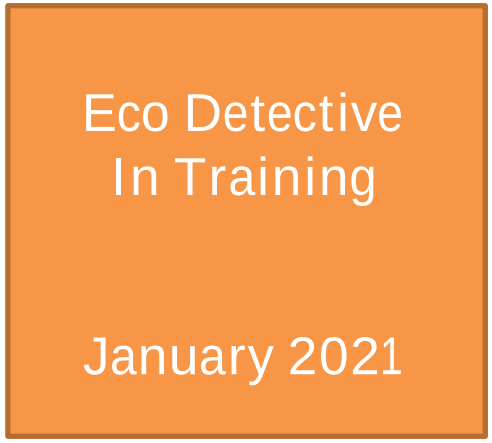
- Packed with up-to-date information, facts, and stats on the world's tropical rain forests and beastly bugs
- Illustrated and with high-quality photographs
- Free downloadable audio

Beastly Bugs	Riotous Rainforests
9780753446355	9780753446348
Paperback	Paperback
January 2021	January 2021
£3.99	£3.99

Ages 0 - 5

It’s all about... Beastly Bugs
& It’s all about... Riotous Rainforests

Tracey Turner, illustrated by Sarah Lawrence

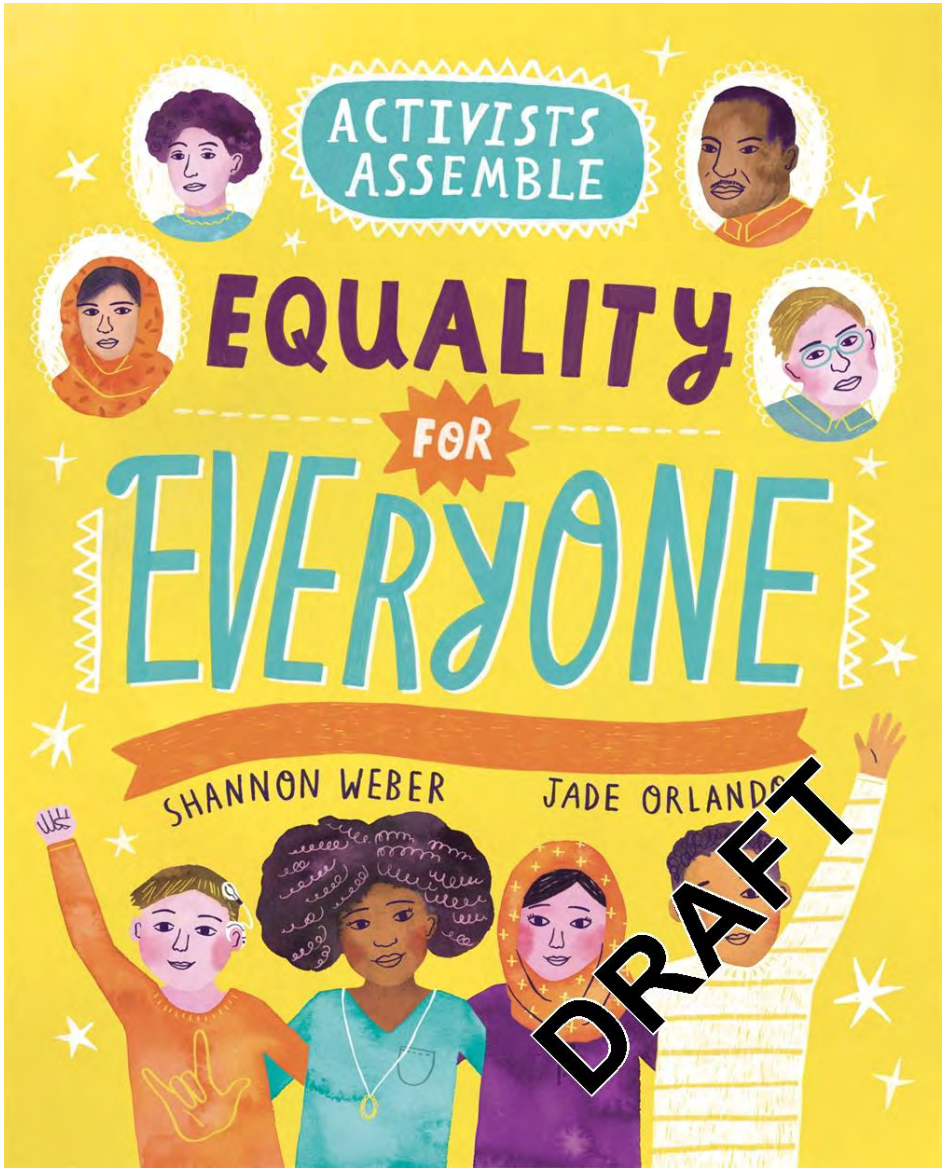


- Step into the shoes of an ecologist! Find out all about the environment and the flora and fauna that make up our world and what we can do to help protect it
- Step into the shoes of a paleontologist! Find out all about the age of dinosaurs and how you could become a dino detective
- Bite-size information for young readers with fun illustrations and activities throughout

Eco Detective in Training
9780753446355
Paperback
January 2021
£8.99

Dino Detective in Training
9780753445990
Paperback
January 2021
£8.99

Ages 0 - 5



Activists Assemble – Equality for Everyone

A call to action for all young activists, giving them the information, inspiration, and practical advice they need to get their voices heard

- Inspirational profiles of the women and men who challenged inequality and changed the course of history
- Packed with challenges and practical activities to encourage children to stand up and make a difference

9780753446195
Paperback
January 2021
£8.99

Ages 0 - 5

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Flexi Slipcase

Ages 0 - 5

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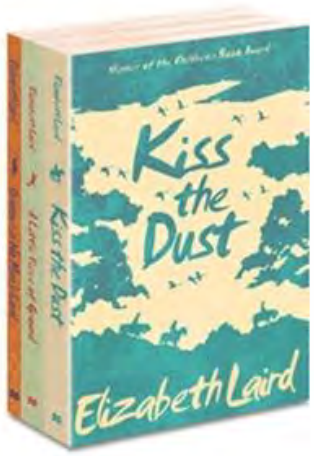

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Set Shrink-Wrapped

Ages 0 - 5

Eva Ibbottson set x 3

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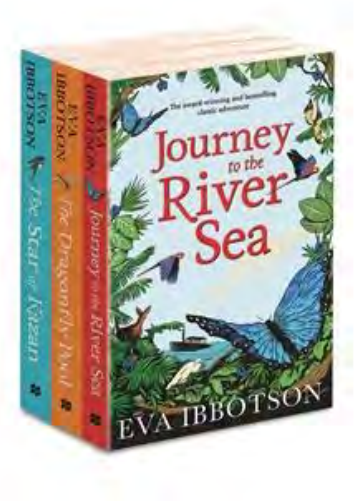

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Ages 0 - 5

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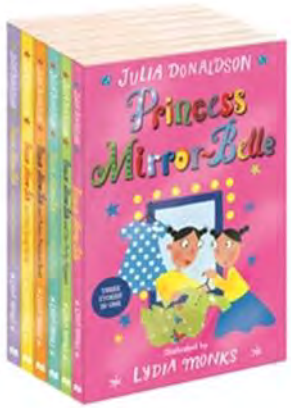
Special Sale



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Stock available now

Pack ISBN: 9781509880218

Set shrink-wrapped

Ages 0 - 5

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Book Set

Ages 0 - 5

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Ages 0 - 5

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Ages 0 - 5

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