

THE WORLD'S
FIRST

ROLLER COASTER

AND OTHER AMAZING INVENTIONS

MIKE
BARFIELD

FRANZISKA
HÖLZBACHER



WARNING!

THESE INVENTIONS WILL **NOT**
BE FOUND IN THIS BOOK...

CHOCOLATE
TEAPOT



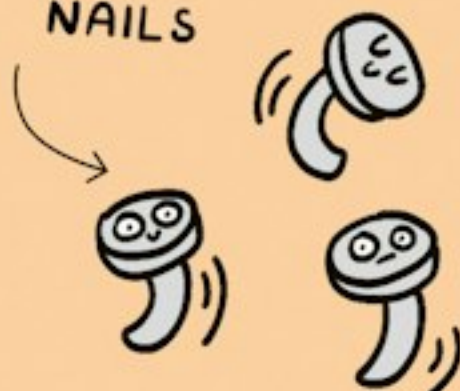
INFLATABLE DARTBOARD



CONCRETE
PILLOW



RUBBER
NAILS



WICKER FISHTANK



SEE-THROUGH
MIRROR



GLASS
HAMMER



WATERPROOF
LOO PAPER



THEY ARE **NOT** AMAZING.
THEY ARE JUST **SILLY!**





A TEMPLAR BOOK

First published in the UK in 2024 by Templar Books,
an imprint of Bonnier Books UK
4th Floor, Victoria House,
Bloomsbury Square, London, WC1B 4DA
Owned by Bonnier Books
Sveavägen 56, Stockholm, Sweden
www.bonnierbooks.co.uk

Text copyright © 2024 by Mike Barfield
Illustration copyright © 2024 by Franziska Höllbacher
Design copyright © 2024 by Templar Books

10 9 8 7 6 5 4 3 2 1

All rights reserved

ISBN 978-1-80078-372-0

This book was typeset in Providence Sans,
Bokka, Chubby Chap, Mind Boggle, Boucherie,
Fruity Snack.

The illustrations were created digitally.

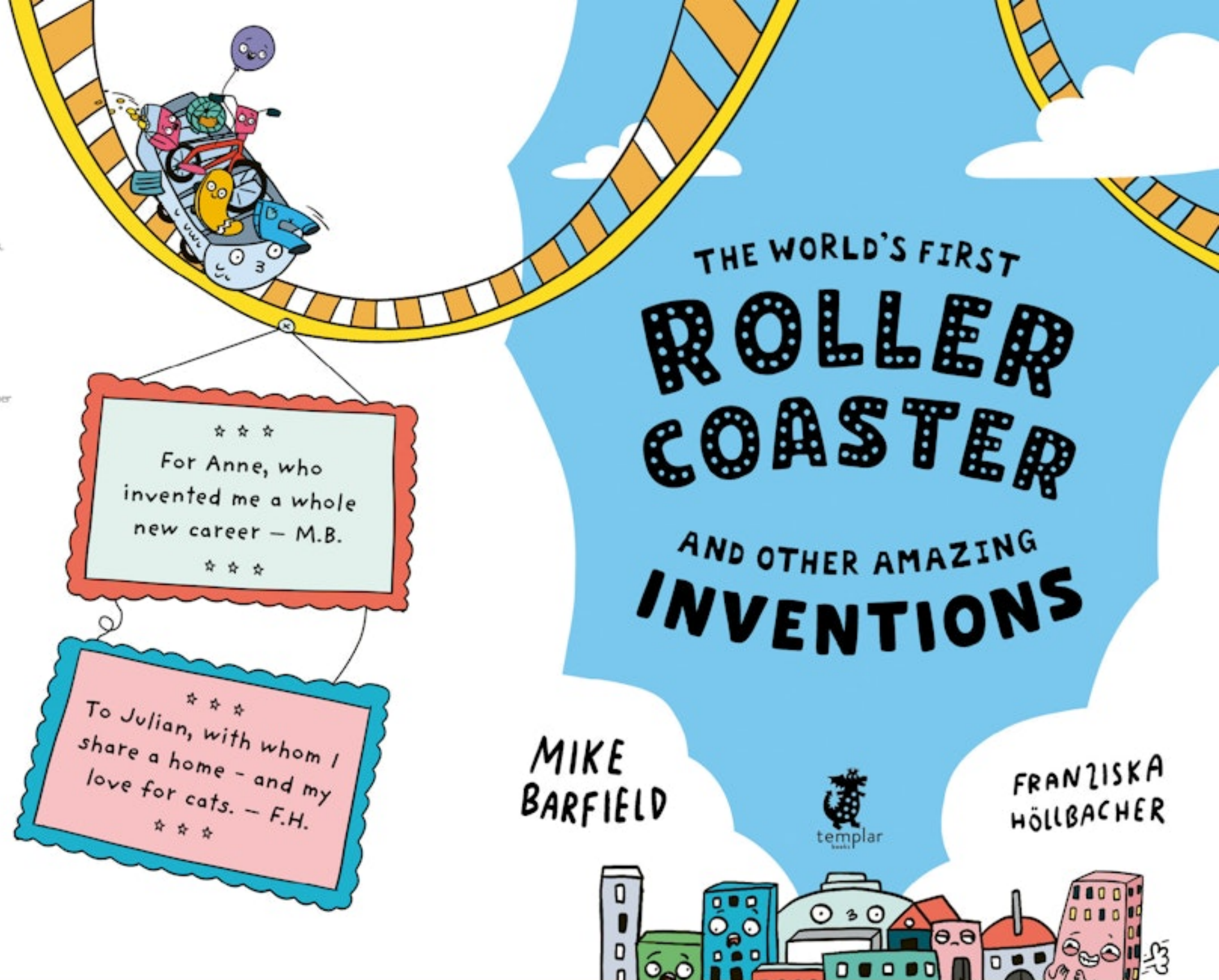
Edited by Sophie Hallam

Fact-checked by Houda Hasbini

Designed by Anna Ring

Production by Neil Randles

Printed in China



CONTENTS

1 HIGH AND MIGHTY	9
ROLLERCOASTER	10
SKYSCRAPER	12
DIÉBÉDO FRANCIS KÉRÉ	14
SUPERMARKET	16
WIND TURBINE	18
NO PLACE LIKE HOME!	20



2 GOING PLACES	21
BICYCLE	22
BULLET TRAIN	24
ELECTRIC VEHICLE	26
BERTHA BENZ	28
DRONE	30
JUST THE TICKET!	32



3 HOUSE AND HOME	33
FLUSH TOILET	34
PERCY SPENCER	36
BUBBLE WRAP	38
DOMESTIC DOG	40
GREAT MISTAKES	42



4 FOOD AND DRINK	43
HAMBURGER	44
FIZZY DRINKS	46
MOMOFUKU ANDO	48
POTATO CHIPS	50
FOOD FOR THOUGHT	52



5 WEAR AND TEAR	53
DENIM JEANS	54
SPORTS SHOE	56
PATSY O'CONNELL SHERMAN	58
SCHOOL RULES!	60



6 FUN AND GAMES	61
SKATEBOARD	62
TEDDY BEAR	64
LONNIE JOHNSON	66
TOY BALLOON	68
PLANET MIRTH!	70

7 RUN AND JUMP	71
FOOTBALL	72
TABLE TENNIS	74
KANŌ JIGORŌ	76
JOLLY GOOD SPORTS!	78



8 SCREEN AND HEARD	79
VIDEO GAMES	80
TABLET COMPUTER	82
JAWED KARIM	84
SMARTPHONE	86
BRAVE NEW WORLD	88
YOUNG WIZARDS	90
PATENT'S PROGRESS	92



INTRODUCTION

STOP! Before we go any further, a question:

Are you taller than this **BOOK**?

Yes? Then, congratulations, as that means you can climb aboard the fast-paced thrill ride that is...

The World's first Rollercoaster and other Amazing Inventions!

This book is about to take you on a twisting, turning journey through some of the most fun and famous inventions of our world. From skateboards to skyscrapers, teddy bears to toilets, and from bubble wrap to burgers and beyond, they are all squeezed into these fact-packed pages.

But, be warned! This book has more light bulb moments than a funfair after sundown. So, find a seat, strap yourself in and get ready to scream – with delight! The reading ride-of-your-life is about to begin!



The world is bursting with buildings, and no wonder with a population of about eight billion people! In this chapter, we reveal a selection of striking structures that are record-makers and record-breakers, as well as some that are just plain fun! First, let's build the excitement with four fantastic facts:

WORLD'S OLDEST HOME



Knap of Howar in the Orkney Islands, Scotland, is over **5,000 years old**! It lacks a roof but still has a lovely view of the sea.

WORLD'S HIGHEST SANDCASTLE

21m

Built in a sculpture park in Denmark in 2021, this pile of sand stood at just over 21 metres tall, helped by a small amount of **glue** and **clay** mixed in.

CHEATING?

BIGGEST BIRD-SHAPED BUILDING



Ashgabat International Airport in Turkmenistan, Asia, is built in the form of a giant **white falcon** swooping low.

FIRST BUILD ON MINECRAFT

Just 49 minutes after the computer game Minecraft launched in 2009, a player called 'Muku' built a **nine-block bridge**. Now over 170 million people play it each month!



ROLLERCOASTER

HI! I'M GRAVITY. THE INVISIBLE FORCE THAT MAKES THINGS FALL.

ALMOST THERE!

YOU DEARY!

I'M WHY ROLLERCOASTER CARS NEED PULLING UP THE TRACKS...

NO GOING DOWNHILL, FAST EEE!

...AND WHAT HELPS THEM RACE ROUND THE TRACK AND BACK DOWN TO THE GROUND!

THE IDEA FOR ROLLERCOASTERS CAME FROM GIANT ICE SLIDES BUILT FOR WINTER FUN IN RUSSIA, 400 YEARS AGO... PEOPLE ROSE ON BLOCKS OF ICE!

IT'S A SLIPPERY SLOPE!

TODAY MANY COUNTRIES STILL CALL ROLLERCOASTERS 'RUSSIAN MOUNTAINS'.

THE FIRST MODERN STYLE ROLLERCOASTER APPEARED IN PARIS, FRANCE, IN 1817, AND HAD WHEELED CARS ON A HEART-SHAPED TRACK...

I LOVE THIS!

ME TOO!

PEOPLE BEGAN BUILDING BIGGER AND BETTER WOODEN RIDES IN SEARCH OF THRILLS.

IS THIS THING SAFE?

TOUGH WOOD!

'LEAPS THE DIP', PENNSYLVANIA, USA BUILT 1902, AND STILL WORKING!

THE WORLD'S FIRST ROLLERCOASTER WITH STEEL TUBES FOR TRACKS OPENED IN DISNEYLAND, USA, IN 1959...

IT'S A TREE MOUNTAIN!

BUT REAL FUN!

THE MATTHEW HORN DOBBLETS

THERE ARE WELL OVER 2,000 ROLLERCOASTERS IN THE WORLD TODAY, AND TUBULAR STEEL TRACKS ALLOW DESIGNERS TO INCLUDE TIGHT BENDS THAT FLIP RIDERS UPSIDE DOWN. BUT NOT FOR LONG!

TWO MINUTES LATER

AGAIN! AGAIN! AGAIN!

WELL THAT WAS SOON OVER

STOP!

WHATEVER NEXT? ON A ROLL

WE HAVE LIFT OFF!

The forces felt by rollercoaster riders can be greater than those felt by astronauts during rocket launches, but for much briefer times.

zOOOM!

The world's fastest rollercoaster is the Formula Rossa in Abu Dhabi, Dubai. The cars reach a speed of 240 km/h in under five seconds!

GOING UP!

Rollercoaster fans have their own language. The floating feeling you get on hills is known as 'airtime'.

GOING LOOPY!

Rollercoaster loops are shaped like upside-down teardrops - not circles - as this makes them safer to ride.

SMILE PLEASE

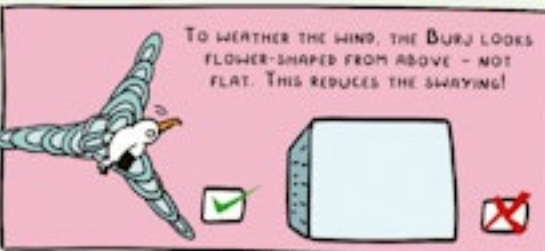
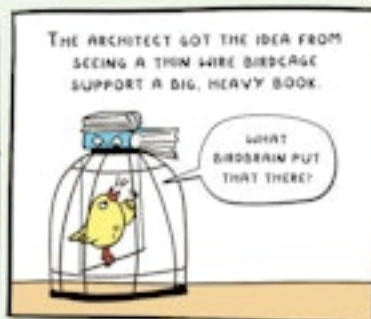
Rollercoaster cameras have snapped some odd sights.

PLAYING JENGA

PUTTING ON MAKE-UP

SLEEPING!

SKYSCRAPER



WHATEVER NEXT? TALL STORIES



BIG DAY

September 3rd is World Skyscraper Day, being the birthday of Louis H Sullivan, architect of the world's first skyscraper.

HIGH ADVENTURE

In 2015, French daredevil Alain Robert climbed the Burj using his hands and feet in just six hours!

STRIKE IT LUCKY

Tall buildings risk being hit by lightning. At over 440 metres high, the Empire State Building in New York City, USA, gets hit over 25 times a year!

THE PENNY DROPS

If a coin dropped from the top of the Burj, it would take 13 seconds to reach the ground. It would hurt if it hit you, but no worse than that.

TOMB WITH A VIEW

Built in 2600 BCE, the Great Pyramid in Giza, Egypt, was the world's tallest building for over 4,000 years. Now we're building even taller towers than the Burj!

HIGHLY INVENTIVE

DIÉBÉDO FRANCIS KÉRÉ

Hello! My name is Diébédó Francis Kéré. In 2022, I became the first African to win the Pritzker Architecture Prize – the world's top award for people who design buildings.

But it has been a long journey – literally!

I grew up in a tiny village called Gando in Burkina Faso, West Africa. There was no school, but we were like one big family. We played together in the village, laughed and built houses side by side. When I was seven, I went to live with my uncle in the city of Tenkodogo to learn to read and write. My first journey!

My school was very hot, with little light or air, and one hundred children all crowded together. This was when I decided that one day I wanted to build better schools for everyone – beginning back home in Gando!

After leaving school, I became a carpenter, working with wood. Skills like these can take you far. Mine took me to Berlin, Germany, where I eventually went to college to study architecture.

Could I make my dream come true?

Maybe! I headed home to Gando to build an eco-friendly school with the help of the community. We made mud bricks rather than use expensive cement and planted mango trees for shade – as well as their tasty fruit!

It was finished in 2001 with a raised roof to beat the heat. I qualified as an architect soon afterwards and went back to build a high school, as well as homes for teachers too!

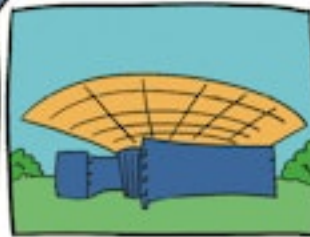
But, best of all, my cool school inspired others like it to be built. Now I have designed buildings all over the world that work with nature, not against it.



BENIN NATIONAL ASSEMBLY,
PORTO-NOVO, BENIN



TUM TOWER, UNIVERSITY OF
MUNICH, GERMANY



SERPENTINE PAVILION,
LONDON, UK

It's been a great journey – and it isn't over yet!

SUPERMARKET

Hi! I'm a can sat on a supermarket shelf, and I'm full of beans...



...JUST LIKE SHOPKEEPER CLARENCE SAUNDERS WAS BACK IN 1916.



IT WAS THE YEAR HE INVENTED THE SELF-SERVICE SUPERMARKET, OPENING THE FIRST ONE IN MEMPHIS, TENNESSEE, USA.



HE GAVE IT AN UNUSUAL NAME THOUGH...

PIGGY WIGGLY



BEFORE THIS, SHOPPERS HAD TO WAIT WHILE STAFF AT SHOPS FOUND THEIR ITEMS FOR THEM...



THEY ALSO BOUGHT FOOD FROM OPEN CONTAINERS.



CLARENCE CANNED ALL THAT. INSTEAD, SHOPPERS GRABBED PRE-PACKED GOODS FOR THEMSELVES ALONG A ONE-WAY ROUTE TO THE TILLS...



SHOPPERS ALSO BOUGHT THINGS ON IMPULSE, POPPING THEM INTO BIG WICKER BASKETS...



CLEVER CLARENCE ALSO WENT ON TO INVENT PRICE TAGS FOR SHELVES AND TILL RECEIPTS FOR SHOPPERS...



BUT ONE MYSTERY STILL REMAINS. WHY CALL HIS STORES 'PIGGY WIGGLY'?



THE GREAT INDOORS

The world's first shopping mall was the Southdale Center in Edina, Minnesota, USA. Opened in 1956, architect Victor Gruen wanted to create a European-style high street indoors, free from cars.

NAME GAME
The word 'mall' comes from 'Pall Mall', a smart London street. However, 400 years ago it was a large field where rich people played a popular ball game. Buckingham Palace now stands nearby.

MIGHTY MALL

The world's most massive mall is Iran Mall in the Iranian capital of Tehran. It has shops on seven floors covering an area greater than 270 football pitches!

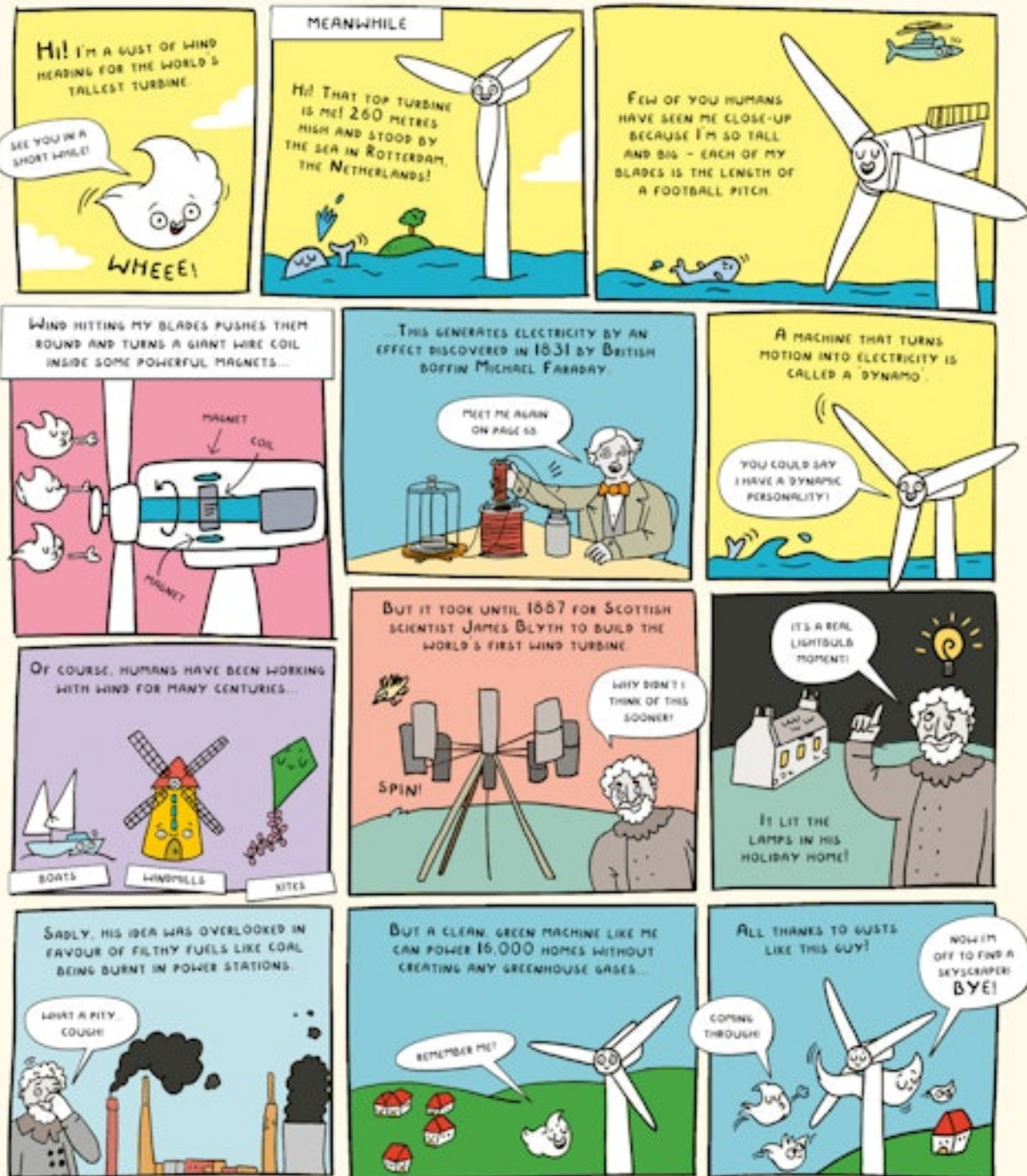


HOT STUFF!

Volcano Buono Mall near Naples, Italy, is inside a giant grass-covered mound shaped like a shallow volcano. Its name means 'Good volcano', unlike nearby Mount Vesuvius, a real volcano that once destroyed the Roman city of Pompeii and all its shops and stalls.



WIND TURBINE



WORLD OF WONDERS

NO PLACE LIKE HOME!

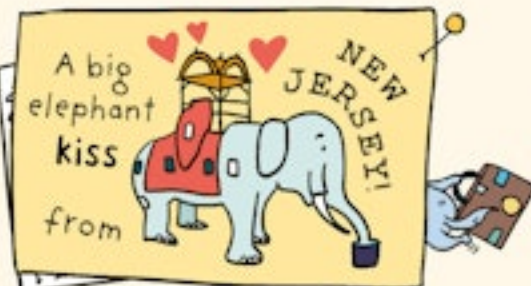
Fancy spending a night inside an elephant, or turning your home into a toilet? Here are some of the oddest buildings in the world!



The **Upside-down House** in Szymbark, Poland, is a top tourist attraction. You enter through a window in the roof!



The **Haines Shoe House** in Pennsylvania, USA, was built by a shoe salesman to advertise footwear. Wipe your feet before entering!



'**Lucy**' is a giant concrete elephant in New Jersey, USA, that doubles as a hotel. Don't forget to take a trunk!



A house in Oxford, England, has a giant fibreglass **shark** wedged in its roof!



This home in Miziara, Lebanon, is a full-sized replica of an **Airbus A380**, the world's largest passenger plane. Do you think the idea will take off?



The '**Toilet House**' in Suwon, South Korea, is now a museum all about toilets and has a giant, golden sculpture of a poo outside. Make sure you wash your hands!

CHAPTER 2 GOING PLACES

Humans have been on the move for the past 200,000 years: first on foot, then by water, horses, wheels and wings. In this chapter, we have the stories behind some of the cleanest, greenest ways to travel, and much more. So, get a move on! Let's start with some 'safety first' facts!

WORLD'S FIRST SPEED LIMIT

Introduced in Britain in 1865, motor car drivers had to keep below **1.6 km/h** in towns and have someone walk slowly in front with a red flag!



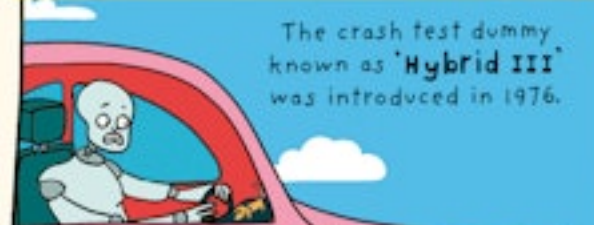
FIRST CHILD SAFETY SEAT

The modern-style car **safety seat** was invented in 1962 by Jean 'Jerry' Ames, a working British mum who wanted to keep her young son safe.



MOST CRASHED DRIVER

The crash test dummy known as '**Hybrid III**' was introduced in 1976.



Used by car makers across the world, if '**H III**' could stand up he would be **1.75 metres** tall.

ODDEST SAFETY MEASURE

It may sound scary, but most modern cars contain **high explosives**!



They are detonated by collisions to produce the nitrogen gas that inflates airbags.

CRASH!

BICYCLE

Hi! I'm a BMX bike. JOIN ME FOR SOME GIANT LEAPS... IN BICYCLE HISTORY!

'BMX' STANDS FOR 'BICYCLE MOTOCROSS' - A SPORT THAT STARTED IN THE 1970s!

OUR FIRST STOP IN BICYCLE HISTORY DATES BACK TO 1817, AND A WOODEN WONDER MADE BY GERMAN INVENTOR KARL VON DRAIS...

MY 'RUNNING MACHINE' SHALL REPLACE THE HORSE!

NEIGH!

KARL'S CONTRIVANCE WAS PUSHED WITH THE FEET - AND WAS HARD WORK!

HOWEVER, IT PROVED POPULAR ACROSS EUROPE, AND WAS GIVEN MANY NEW NAMES...

DEASINE!

VELOCEPEDI!

BANDY HORSE!

SILLY MACHINE!

IN 1853, GERMAN PHILIPP MORITZ FISCHER ADDED PEDALS TO THE FRONT WHEEL...

I CALL IT THE TRETEURDELFÄHRRAH!

SNAPPY...

AND IN 1863, FRENCH ENGINEERS MADE AN IMPROVED VERSION IN METAL...

IT'S CALLED A B-BONESHAKER

I SH-WONDER SH-WHY

THE SO-CALLED 'PENNY-FARTHING' APPEARED IN THE 1870s...

HE

YES, VERY HIGH GULP!

ITS PROPER NAME WAS THE 'ORDINARY BICYCLE' - THE FIRST USE OF THE WORD 'BIKE'.

WARRNA GO!

ON YER BKE - THEY'RE DANGEROUS!

LUCKILY, THE 'SAFETY BICYCLE' REPLACED IT IN THE 1880s - WITH A CHAIN, BRAKES AND SAME-SIZED WHEELS.

WHAT A RELIEF

BASICALLY, ALL BIKES HAVE BEEN VERSIONS OF THIS EVER SINCE - INCLUDING ME!

AND US HORSES ARE STILL HERE, NAI!

WHATEVER NEXT? PEDAL POWER!

ALIEN LIFE CYCLE

The world's best known bike is the BMX that flew across the moon in the 1982 blockbuster family film, *E.T. the Extra-Terrestrial*. The BMX that followed were out-of-this-world!

IS IT A BIRD?

BMX bikers can now compete in the Olympic Games. The sport involves tricks with names including the tailwhip, 'T-Bog', bunny hop and 'Superman', where the rider leaps with their arms held like a flying superhero.

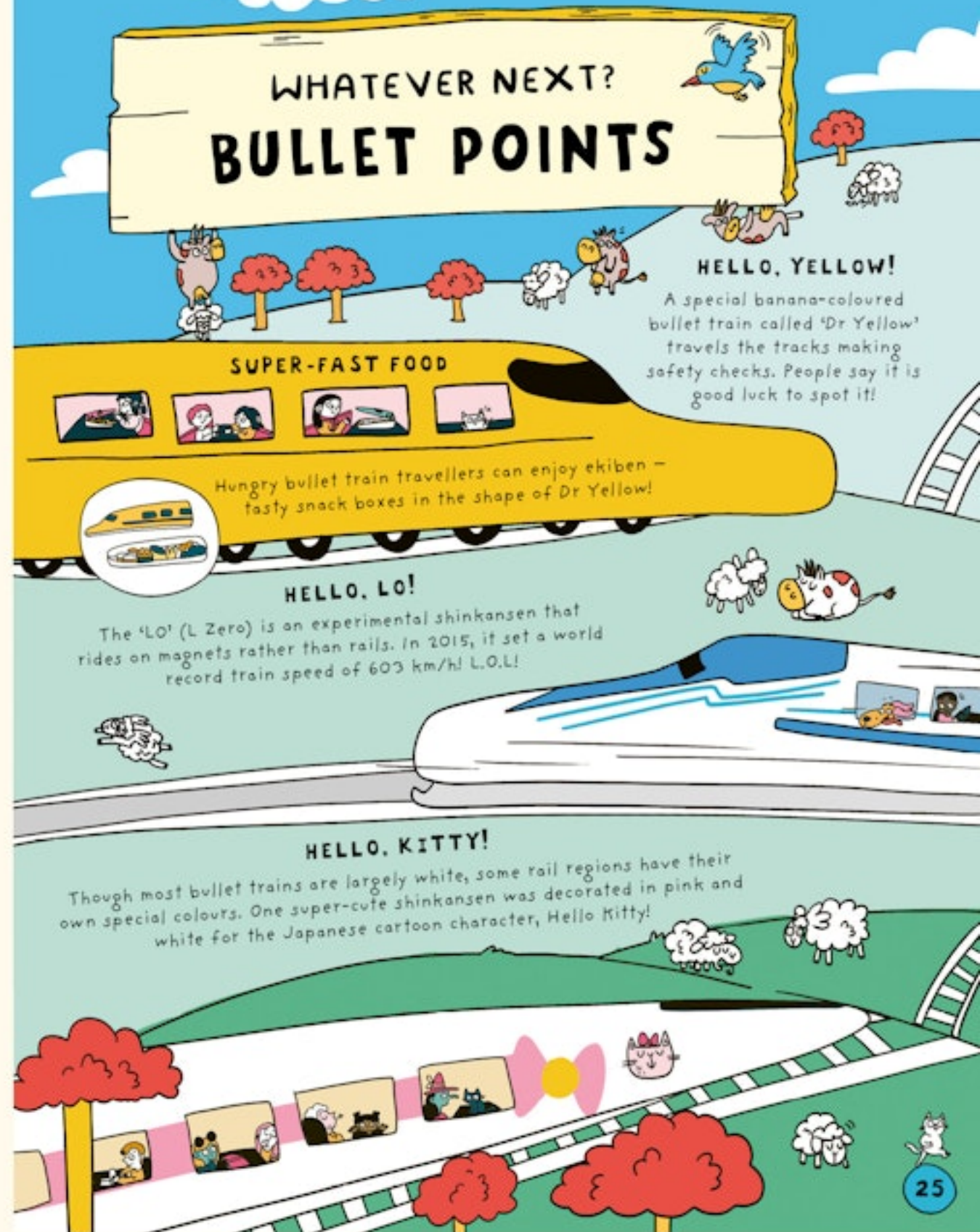
SPEEDY SEB

Dutch athlete Sebastiaan Bowier hit a world record cycling speed of 133 km/h in 2013 by pedalling whilst lying down inside a giant, streamlined shell.

VERY HANDY!

Handcycles are three-wheeled bikes for people who use their arms to pedal. Amazingly, the earliest-known example dates back to 1655!

BULLET TRAIN



ELECTRIC VEHICLE

HEH, HEH! WELCOME TO MY WORLD OF DARKNESS WHERE I WIELD TOTAL POWER!



I'M THE BATTERY IN AN ELECTRIC VEHICLE! TRANSPORT OF THE FUTURE... WELL, NOT QUITE!



AS LONG AGO AS 1881, FRENCH INVENTOR GUSTAVE TROUVE PROVE A BATTERY-POWERED TRICYCLE AROUND PARIS.



THEN, IN 1888, GERMAN ANDREAS FLOCKEN BUILT THE FIRST REAL FOUR-WHEELED ELECTRIC 'CARRIAGE'...



IT'S CALLED A 'CAR' FOR SHORT...

RIVAL CAR DESIGNS RAN ON COAL AND OTHER FOSSIL FUELS, BUT IN 1899, BELGIAN DAREDEVIL CAMILLE JENATZY SMASHED THE 100 KM/H BARRIER IN A BATTERY-POWERED RACER!



GOES LIKE ONE TOO!

IT LOOKS LIKE A ROCKET!



OF COURSE, MOST LAND VEHICLES USED ANOTHER FORM OF HORSEPOWER...



THE ORIGINAL AND BEST

BUT, LIKE MANY MODERN MOTOR CARS, THEY ALSO PRODUCED SOME UNPLEASANT EMISSIONS...



YUM!

SORRY!

DON'T APOLOGISE!

ELECTRIC CARS WERE CLEANER, AND MANY BIG CITIES USED THEM AS TAXIS...



WHAT'S THE CHARGE?

ABOUT 12 VOLTS

BUT US MOTOR MOGUL HENRY FORD THREW A SPANNER IN THE WORKS IN 1908 WITH HIS MUCH CHEAPER, PETROL-DRIVEN 'MODEL T' CAR...



PEOPLE CAN AFFORD A FORD!

PETROL AND DIESEL VEHICLES WENT OUT, BUT THEIR EMISSIONS HAVE HELPED HEAT THE PLANET...



THOSE CARS AREN'T COOL!

SO NOW WE'RE RETURNING TO ELECTRIC VEHICLES - ALSO KNOWN AS EV



THE OLD IDEAS ARE SOMETIMES THE BEST!

WHIR!

WHATEVER NEXT? CURRENT AFFAIRS

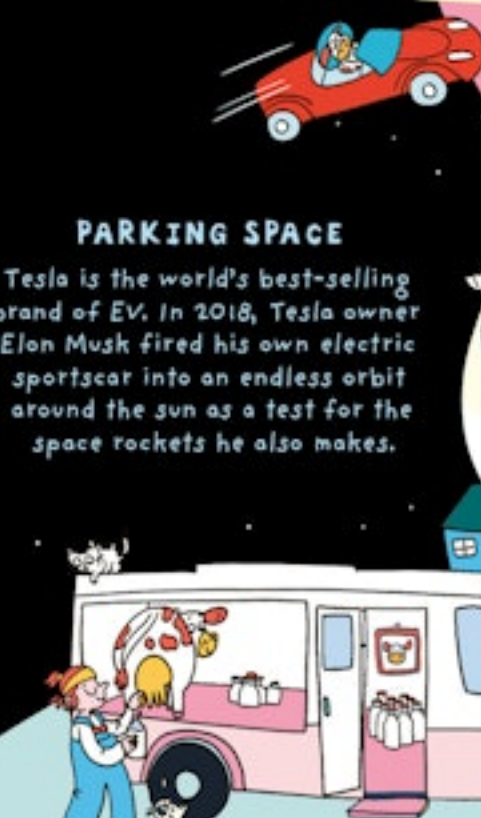
FULL MOON

Fancy your own EV? There are three going spare on the moon! Nicknamed 'moon buggies', the Lunar Roving Vehicles were left behind by the USA's 'Apollo' missions of the early 1970s.



PARKING SPACE

Tesla is the world's best-selling brand of EV. In 2018, Tesla owner Elon Musk fired his own electric sports car into an endless orbit around the sun as a test for the space rockets he also makes.



LOTTA BOTTLE

For most of the last century, the majority of the world's EVs were milk floats - slow-moving electric vans used for delivering bottled milk. Their quiet motors didn't disturb sleeping customers early in the morning. Shhh!



LIGHTNING FAST

The world's fastest electric vehicle is the Buckeye Bullet 3, built by students of Ohio State University. In 2016, it hit 495 km/h - about five times the local speed limit for cars!



HIGHLY INVENTIVE

BERTHA BENZ

Hello! My name is Bertha Benz. My husband Carl invented the petrol-driven automobile in 1885, but without me you might never have heard about it.



This is the latest version of his invention, the Patent-Wagen III. Carl is great at making things, but not at selling them. So, I came up with a cunning plan!



Before dawn on 5 August 1888, me and our two eldest boys, Eugen (15) and Richard (13), 'borrowed' one of Carl's cars while he was still asleep, and set off on a trip from our home in Mannheim to my mother's house in Pforzheim, 106 kilometres away (we left Carl a note). No car had been on such a long journey before!



There were no road signs then, so I had to guess the route – and the boys pushed the car up any steep hills.



We had to get more fuel at a chemist's shop in Wiesloch – making this the world's first filling station!



There were a few small troubles along the way. A chain had to be mended by a blacksmith, the engine kept needing to be cooled with water, and a fuel line got clogged – but I cleared it with my long, thin hatpin! I too am a clever engineer!



We arrived at my mother's house after dusk – and news of our record journey went around the world! As a result, people now wanted to buy Carl's car. My plan had worked!

Also, I had invented the first test drive AND the first family road trip. Remember that next time you ask the driver:

ARE WE NEARLY THERE YET?



DRONE

Hi! I'm a mini remote-controlled helicopter - also known as a drone.

'Drone' sounds dull, but helicopter history isn't!

It goes back to ancient China and simple flying toys with feathers for rotor blades.

YES! THEN IT FLIES TO THE SKIES!
YOU SPIN IT BETWEEN YOUR HANDS!

Italian egghead LEONARDO DA VINCI designed an 'aerial screw' in the 1480s, but it never got off the ground...

THE NEXT FEW CENTURIES SAW MANY ATTEMPTS TO MAKE ROTOR-POWERED FLYING MACHINES WITHOUT SUCCESS. THEN, IN 1861, FRENCH INVENTOR GUSTAVE D'ARMECOURT MADE A BREAKTHROUGH...

I INVENTED THE WORD 'HELICOPTER', FROM 'HELICO' MEANING 'SPIRAL' AND 'PTER' FROM THE GREEK FOR 'WING'.

IN 1907, ANOTHER FRENCH INVENTOR, LOUIS CHARLES BREGUET, FINALLY MADE THE FIRST MANNED HELICOPTER FLIGHT - JUST 60 CENTIMETRES ABOVE THE GROUND!

MIS MACHINE WAS A 'QUADROPTER', WITH FOUR SETS OF ROTORS, JUST LIKE ME!

AFTERWARDS, THE WORLD BUILT BIGGER AND BETTER HELICOPTERS.

TODAY, THE WORLD'S LARGEST HELICOPTER IS THE 40-METRE-LONG MIL MI-26. IT COULD LIFT THREE LARGE AFRICAN ELEPHANTS!

NIFTY LITTLE BATTERY-POWERED DRONES CAME ALONG IN THE 1930s, AND NOW WE DO LOTS OF JOBS.

MAPPING MOUNTAINS

MAKING MOVIES

FIGHTING FIRES

SAVING LIVES

AS I SAID, DRONES AREN'T DULL! NOW, I'M OFF TO INSPECT A SKYSCRAPER. BYE!

WHATEVER NEXT? GAME OF DRONES

SPACE AGE RACE

Drone racing is a sport where drones are steered at super-speed around special courses. Players wear virtual reality headsets and get to feel like they are sat in a tiny pilot's seat onboard!

THE DRONE DAILY

LIFE ON MARS

A small helicopter called 'Ingenuity' became the first object to fly on Mars in April 2021. It was sent by the US space agency NASA to help search for signs of life.

SPECIAL DELIVERY

In the future, goods, food and medicines may well be delivered to your home by drones. Several big businesses have made test flights but there are still safety concerns to overcome.

EYE IN THE SKY

Drones can be used to help with animal conservation by tracking endangered species and spotting poachers. However, elephants hate the noise they make, and can't see where it is coming from.



The campfire was probably the first great household invention, back when caves were all the rage. Today, microwave ovens can heat food in a flash, but you don't get people or pets cosy up to them. In this chapter, we consider some common home comforts – including those for our furry, four-legged friends! But first, let's take a look at the huge variety of devices in our households – some are the stuff of science fiction!

MOST INFURIATED INVENTOR

In 1886, Josephine Cochrane of Illinois, USA, was driven to invent a **dishwasher** that spray-cleaned plates with water because she was sick of doing it.



MOST UNKNOWN INVENTOR

Fancy giving the carpets a quick 'spangler'? The vacuum cleaner was actually invented in 1907 by James Spangler, who sold his idea to William Henry Hoover.



MOST GUARDED HOME



New York nurse Marie Van Brittan Brown invented the first **home security** system, with cameras inside and out, as she didn't enjoy coming home alone at night.

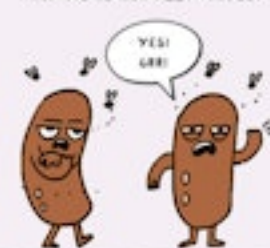
MOST INTRUSIVE INVENTION?



A **virtual assistant** constantly listens for commands while connected to the internet. In 2018, a parrot called Rocco used one to order a watermelon, ice cream and a kite.

FLUSH TOILET

Hi! WE'RE A PAIR OF POOS - AND WE'RE ROYALLY CROSS!



WE'RE CROSS WITH THIS ROYAL IN PARTICULAR...



JUST OVER 400 YEARS AGO, ENGLISH QUEEN ELIZABETH I BECAME THE WORLD'S FIRST FAMOUS NAME TO USE A FLUSHING TOILET.



THE FLUSH TOILET WAS INVENTED BY HER GODSON JOHN HARRINGTON, A POET-TURNED-PLUMBER...



IN 1596, HE BUILT HER A WOODEN LOO WITH A WATER TANK ABOVE IT TO WASH AWAY WASTES...



FRANKLY, WITH THIS INVENTION ALL OUR FUN WENT DOWN THE PAN - FOREVER!



BEFORE FLUSH TOILETS, PEOPLE USED POTS THEY KEPT IN THEIR BEDROOMS...



LOOK OUT BELOW! THEN, IN THE MORNINGS, US POOS FLEW!



THAT WAS A FUN WAY TO GO!



THE INVENTION OF THE FLUSH TOILET MEANS WE NOW MEET A WATERY END INSTEAD...



TO MAKE THINGS WORSE, BRITISH PLUMBER THOMAS CRAPPER INVENTED THE U-BEND IN THE 1860S...



FRANKLY, US POOS HATE FLUSH TOILETS...



WHATEVER NEXT? TAKE A SEAT

BOLDLY GO

The world's most expensive toilet cost over \$25 million US dollars to develop. It is on board the International Space Station and uses a fan - not a flush - to suck waste inside it.



SITTING PRETTY

The most valuable loo on Earth is on display in the Hong Fung 'Hall of Gold' in Hong Kong. Solid gold, it is valued at \$5 million, and no one is actually allowed to use it as a loo.



YUM OR YUK?

'Modern Toilet' is a chain of toilet-themed restaurants in Taipei, Taiwan. Customers sit on loo seats to eat food served on bathroom-style plates, including poo-shaped puddings.



IS IT ART?

The sculpture 'Fountain' by French surrealist artist Marcel Duchamp is a factory-made men's urinal laid flat and signed 'R Mutt, 1917'. Experts reckon it is the world's most important piece of modern art ever!



HIGHLY INVENTIVE

PERCY SPENCER

Hello! I'm US engineer and inventor, Percy Spencer. I wonder if my name rings a bell because my most famous invention certainly does: the microwave oven!

DING!



Its invention was a happy accident, though I had a less happy start myself. I had to leave school and begin work when I was just 12 years old. Later, I joined the US Navy where I taught myself all about **radiowaves** – not just ocean waves!

During World War Two, I worked at a big defence company developing devices called **magnetrons** that produced invisible rays called microwaves. One day, I was standing close to a magnetron when I got a warm feeling...

A chocolate bar in my pocket had melted. **DING!** I had an idea! I reckoned the invisible microwave rays were the cause of the heat. So, I tested my theory with a bag of popcorn kernels – they cooked too. Pop!



Next, I fired microwaves at a raw egg. The invisible rays made it so hot inside that it exploded, scattering yolk over one of my colleagues. You could say we both ended up with egg on our faces. Ooops!



After all these experiments, I set about building a microwave oven people could use in their homes. Back in 1947, the first model was called the **Radarange** but – at two metres tall – it was far too big and expensive. We sold only one!



Microwaves soon got smaller though, as did the price. Nowadays, many homes have them and they are a safe and efficient way of cooking. The invisible rays heat up food by making its water molecules vibrate really fast. But now my time is up. Ding!

BUBBLE WRAP



WHATEVER NEXT? WRAP STAR

GOLDEN 'POP-PORTUNITY'

'Sealed Air', the company formed by the two inventors to produce bubble wrap, celebrated its 50th anniversary in 2010 with a limited-edition gold-coloured version.

POP ARTIST

US artist Bradley Hart copies famous paintings by injecting paint into the bubbles on giant sheets of bubble wrap.



LOVELY BUBBLY

Today, bubble wrap bubbles come in many shapes and sizes – including novelty smiley faces and love hearts!

NON-STOP POP

A 'Mugen Puchipuchi' is a Japanese electronic toy that replicates the sound and feel of bursting bubble wrap without ever running out of bubbles!

PACK IT IN!

Plastic bubble wrap can be recycled but is best kept and reused. Non-plastic alternatives include compostable packing chips made from sweetcorn and mushrooms.

DOMESTIC DOG

HELLO.
I'M HERE...

THAT'S BETTER.
I'M A DACHSHUND.
SMALL BUT WITH THE
HEART OF A WOLF...

A LONG-GONE WOLF THAT PROBABLY LIVED IN
SIBERIA, RUSSIA, ABOUT 14,000 YEARS AGO.

WE ARE
WOLVES...

WE WOLFED THEM
DOWN! YUM!

DOWN HERE!
COME ON!

ALTHOUGH MODERN DOGS ARE NOT
CLOSELY RELATED TO LIVING WOLVES,
I'M AFRAID...

SORRY!

WE'RE
DELIGHTED!

SOME SCIENTISTS THINK OUR WOLF
ANCESTORS HIT ON HUMANS FOR THE
WASTE FOOD THEY LEFT AROUND.

THEY'RE NOT
VERY TOY.

CHOMP! CHOMP!

YES, ISN'T IT
GREAT!

THE WARMTH OF OUR FIRES MAY
ALSO HAVE ATTRACTED THEM...

I COULD GET USED
TO THIS IN 14,000
YEARS OR SO...

LESS WARY WOLVES MAY HAVE
STAYED WITH HUMANS...

GOOD BOY, MR
WAGGLES!

PAT!

SURE MY WOLF NAME IS
BONECRUSHER.

OVER TIME, DOGS BECAME THE FIRST
ANIMALS TO BE DOMESTICATED...

PEEBO BIG
DEAL!

WE AGREE.

HOWEVER, US DOGS RECKON
WE DOMESTICATED YOU...

EXACTLY!

YES!

LOOK AT ALL THE THINGS WE'VE GOT YOU DOING FOR US!

FINDING FOOD

OPENING DOORS

CUBBLES

PICKING UP POO

TO SAY WE ARE
TOP DOG HERE...

WHAT?

SWIPE!

OR, MAYBE
NOT...

SCRATCH!

WHATEVER NEXT? A DOG'S LIFE

ROVER'S RETURN

The retractable lead that lets
a pooch pull ahead then be brought
back was invented in 1908 by New
Yorker, Mary A Delaney. She wanted
to stop dogs getting tangled up with
lampposts. Dogs love lampposts!

BROLLY GOOD!

The see-through dog umbrella was
invented in 2003 by another New
York citizen, Irina Zhadan-Milligan.
It prevents pets getting wet when it
rains, unless, of course, your poodle
pootles through a puddle.

QUACKING IDEA

'Quack' is a soft silicone
rubber muzzle invented
in Japan that can turn a
nippy dog into a nutty-
looking duck with a funny,
friendly smile.

EAR, EAR!

In 1980, US inventor
James D Williams patented
his Animal Ear Protectors – a
device for keeping long-eared
dogs from trailing their lengthy
lugs in their food as they feast.

SHADES OF GLORY

US businesswoman Roni de Lullo invented
'Doggies' – doggy sunglasses – after playing
in bright sun with her own dog, 'Midnight'.
Not just a fashion item, they also protect
against dust and sand, and can help dogs
with dodgy eyesight.



DENIM JEANS

Hi! We're a pair of blue jeans!

LET US TELL YOU A STORY!

THIS STORY HAS LEGS - AND IT'S RIVETING TOO!

THAT'S RIGHT!

YAY!

IT BEGINS IN EUROPE, HUNDREDS OF YEARS AGO!

GENOA IN ITALY MAKES A BLUE COTTON CLOTH THE FRENCH CALL BLEU DE GENES.

NIMES IN FRANCE MAKES A SIMILAR CLOTH CALLED 'SERGE DE NIMES'.

THE NAME 'DENIM' COMES FROM 'DE NIM'...

AND 'GENES' MAY BE WHY WE'RE CALLED 'JEANS'...

WHAT A TURN-UP!

NOW, LET'S LEAP TO RENO, NEVADA, USA, IN 1871 AND TAILOR JACOB W. DAVIS...

I SAW ROUGH, TOUGH STUFF FOR WILD WEST WORKING PEOPLE!

ONE DAY HE MAKES THE POCKET-SEAMS OF A PAIR OF WORK TROUSERS SUPER-STRONG USING COPPER RIVETS.

WE SAID THIS STORY WAS RIVETING!

THESE POWER-POCKET PANTS SOON CATCH ON - ESPECIALLY IN BLUE DENIM.

I'M TROUSERING LOTS OF 'POCKET' MONEY FROM MAKING THEM!

HE BUYS HIS DENIM FROM A DEALER CALLED LEVI STRAUSS...

RECOGNISE THE NAME!!

BETWEEN THEM, THEY HATCH A PLAN...

WE NEED TO PROTECT OUR PANTS!

COPY THAT - OR, RATHER, DON'T!

SO, IN 1873, THEY OBTAIN A LEGAL PATENT TO STOP PEOPLE COPYING THEIR IDEA.

BLUE JEANS ARE BORN!

US PATENT NO. 139321

ONLY, BACK THEN, THEY WERE CALLED 'WAIST OVERALLS' - AND HELD UP WITH BRACES NOT A BELT...

WE THINK 'JEANS' SOUNDS BETTER, OVERALL.

THEIR PATENTED PANTS TOOK OFF - AND JEANS ARE NOW WORN WORLDWIDE.

YOU'VE ALL GOT THE BLUES.

BUT IN A GOOD WAY!

Bye!

WHATEVER NEXT? JEAN SCENE

CREASE ME UP

The light creases that form in jeans with wear have special names. 'Whiskers' fan out at the front, criss-cross 'honeycomb' creases form behind the knees, and 'stacks' are faded lines above the ankle. They all make vintage jeans more valuable!

JEAN'S JEANS?

Lady Levi's were the first denim jeans made especially for females in 1934. They were intended as workwear, but were also popular with women who went on Wild West holidays inspired by Hollywood films.

BLUE PLANET

Making jeans uses lots of water - including growing cotton, dyeing the denim, and stonewashing to distress it. Make your wardrobe more eco-friendly by patching rips and owning them for longer.

SAVE THE PLANET

WHAT A GOLDMINE

The oldest surviving pair of Levi jeans dates back to 1879 and were found in a former gold mine. They are so valuable they are kept in a fireproof safe that only two people can open.

ZIP CODE

Many modern jeans have a zip with the letters YKK on the slider. These are the initials of the Yoshida Kogyo Kabushikikaisha company of Tokyo, Japan, which supplies most of the world's zip fasteners. Now you know!

SPORTS SHOE



Hi! We're a pair of hi-tech sports shoes!

JOIN US FOR A JOG THROUGH HISTORY!



THE WORLD'S FIRST SPORTS SHOES WERE CREATED IN THE USA IN 1865...

CANVAS UPPER



RUBBER SOLE

THEY WERE MADE FOR THE BALL GAME CROQUET.

COOL SHOES!

I WENT THROUGH HOOPS TO GET THEM!



SIMILAR SHOES WERE WORN FOR TENNIS - THEIR SILENT SOLES WINNING THEM A NICKNAME...

THEY'RE CALLING US SNEAKERS.

HOW RUDE!



IN 1917, MARQUIS MILLS CONVERSE LAUNCHED HIS NOW-FAMOUS ALL STARS BASKETBALL SHOES...

THEY'RE A LONGSHOT.

MY FAVOURITE SORT.



ADOLF 'ADI' DASLER STARTED ANOTHER BIG BRAND IN GERMANY IN 1924...

WPM I WONDER WHAT TO CALL IT!



DID YOU GUESS? 'ADIDAS' SPORTS SHOES HELPED LEGENDARY AFRICAN-AMERICAN ATHLETE JESSE OWENS WIN BIG AT THE 1936 OLYMPICS IN BERLIN!

THEY WERE WORTH THEIR WEIGHT IN GOLD.



ADIDAS BECAME HUGE. THEN, IN 1964, AMERICANS PHIL KNIGHT AND BILL BOWERMAN STARTED A NEW TRACK-SHOE COMPANY...

BLUE RIBBON SPORTS

NOT HEARD OF IT!



RENAMED NIKE IN 1970, AFTER THE ANCIENT GREEK GODDESS OF VICTORY, ITS SHOES INCLUDED SOME REVOLUTIONARY DESIGNS...



NIKE CORTAZ (1972)

NIKE MOON SHOE (1974)

NIKE AIR MAX (1987)

THERE IS ONE THING THEY HAVEN'T IMPROVED THOUGH...



SORRY ABOUT THE PONG...

WHIFF!



WHATEVER NEXT?

PUT A SOCK IN IT

DO YOU HAVE IT IN A SMALLER SIZE?

The world's largest trainer was displayed inside a shopping mall in Hong Kong, China, and at 6.4 metres long, it might well have fitted the Statue of Liberty.

NET PROFIT

How much do you think your old trainers are worth? A pair of used Nike Air Ships sneakers sold for almost \$1.5 million in 2021, a record price. The shoes had been worn and signed by basketball legend Michael Jordan in 1984.

GET MY DRIFT?

In 1990, a container ship hit a storm in the Pacific Ocean and 61,000 pairs of Nike trainers went overboard. Experts used the shoes' movements to study ocean currents.

BODY AND SOLE

Japanese sports brand Asics takes its name from the first letters of the words in a 2,000-year-old phrase in Latin, the language of the ancient Romans: 'Anima sana in corpore sano' - which means 'a healthy mind in a healthy body'.

GREEN SHOES

Sports shoes and sneakers can take 1,000 years to rot away when sent to landfill. Any good, clean shoes you have outgrown are best offered to others or given to a clothing charity.



★ HIGHLY INVENTIVE ★

PATSY O'CONNELL SHERMAN

Hi! I'm US chemist Patsy O'Connell Sherman. I was a woman working in science in the 1950s when sadly there weren't many of us around. Despite this, I still cleaned up with a clever invention – even if it was an accident!



In 1953, I was working for a big chemical company, trying to make a new type of rubber. I was in the laboratory with fellow scientist Sam Sherman, when our assistant sloshed a flask of a solution we had made and spilled some on her new white canvas shoes.



Me and Sam scrubbed and rubbed to try to remove it, but nothing worked. Soap, water, special cleaning fluids – it resisted them all. In fact, you could say we were in a 'spot' of bother!

But here's the strange thing. That splash dried, and our assistant carried on wearing those shoes. Over time they got grubby – except where the splashed had landed. This started us thinking...



That spot resisted dirt! We tried staining it with ink and coffee, but it stayed white! This was when we realised we had invented a fabric protector – a chemical that kept clothes from getting wet and dirty.



After lots of tests (which I couldn't attend, being a woman, grrrr!) our company marketed the product worldwide. They gave it the name Scotchgard, and it's used to keep carpets, clothes and furniture safe from dirt – including the grubby paws of pets and kids!

I was lucky with my invention, but not so lucky with how I was treated back then for being a woman. That's why I went on to fight for our rights, and always said: 'girls should follow their dreams'.





SCHOOL RULES!

School clothes are a big part of growing up. Not all schools insist on a uniform, and they vary widely around the world. Look and learn!

BUTTON UP

School children in Italy may wear a **grenbiulino** – a long apron with buttons in the front for boys and at the back for girls.



ANYONE FOR, ER, POLO?

Many pupils wear a **polo shirt**, first invented in 1926 by French tennis player René Lacoste. His nickname was 'The Crocodile', which became his clothing company logo.



NEW SHOES, PLEASE

Japanese children change their shoes once they get to school, swapping them for **uwabaki** – soft slippers, sometimes with a coloured stripe to show what class they are in.



EXPERIMENTAL CLOTHING

Pupils in Argentinian schools look like laboratory scientists in their **long white coats**. The uniform was invented by a teacher in 1915.



STICK WITH IT

School shoes often have **hook-and-loop** straps rather than laces. The fastener was invented by Swiss engineer George de Mestral in 1941 after he noticed prickly plant seeds sticking to his dog.



OLD SCHOOL

Christ's Hospital school in Sussex, UK, dates back to **1552** – as does its uniform. Pupils wear long, blue coats and knee breeches with bright yellow socks!





CHAPTER 6

FUN AND GAMES


Play is an important part of life for many animals, not just us humans. Cats and dogs, our closest companions, keep it up as adults, as do most people – even teachers! Over the centuries, humans have invented lots of weird and wonderful ways of wasting time whilst having a laugh. In this chapter, fun and games are guaranteed. Here are some top toy stories to get play underway...

OLDEST KNOWN DOLL



In 2017, archaeologists found a carved stone doll's head in a remote region of Siberia, Russia, that may be **4,500 years** old. However, the first human playthings were probably just sticks. Ask your dog!

BEST-SELLING DOLL



The **Barbie** doll was invented in 1959 by US businesswoman Ruth Handler. Barbie was named after Ruth's daughter Barbara, and Barbie's boyfriend Ken (since 1961) was named after her son, Kenneth.

WORLD'S SWEETEST DOLL



Stretch Armstrong, launched in the USA in 1976, can be stretched to over four times his size, and keeps his new shape (he is filled with a **thick sugary syrup**) before finally shrinking back.

WORLD'S CRAZIEST CRAZE



Cabbage Patch Kids were chubby-faced cloth dolls that the world went mad for in the 1980s. People fought each other in shops to try and buy them. Ask your parents!

SKATEBOARD



YOU GO POGO?

The modern pogo stick was invented in 1920 and named after its German inventors, Max Pöhlig and Ernst Gottschall. Today, the toy has turned into an extreme sport - Xpogo - where skateboard-style tricks are attempted and people can pogo over three metres high!

HOP TO IT!

Call it a spacehopper, a hoppity hop or a kangaroo ball, the big bouncy ride-on was invented in Italy in 1968, and originally named Pon-pon. The spacehopper speed record for 100 metres is 30.2 seconds and has stood since 2004. Could you beat it?

BANGERS AND DASH

The folding micro-scooter was thought up by former Swiss banker Wim Ouboter in 1997 as a speedy way to reach a favourite Zurich sausage shop without having to use his car. Stunt scooters now do tricks worldwide alongside skateboards.

FUTURE SUCCESS

China-born Shane Chen patented the two-wheeled electric hoverboard in 2011. Though they don't actually hover, hoverboards are named after a floating skateboard in the fun sci-fi film, *Back to the Future Part II*, set in 2015. Shane beat them to it!



TEDDY BEAR





WHATEVER NEXT? BEAR FACTS



BEAR WITH ME

Winnie-the-Pooh is probably the world's best-known bear. The loveable character was based on a real teddy bear – named Edward – that English author A A Milne bought for his son, Christopher Robin, in 1921.

SHELF LIFE

Paddington, the accident-prone bear from Peru, is another storybook bear based on an actual teddy. His creator Michael Bond spotted a lonely ted on a toy shop shelf on Christmas Eve, 1956, and rescued him. Early Paddington teddies were given wellington boots so they would stand-up more easily.

TED TALK

The noisemaker found inside many teddies is known as a 'growler'. It was introduced into bears by the Steiff company in 1908, and is a strong cardboard cylinder with holes that produces a friendly 'growl' when you tip it back and forth.




SMALL WORLD

The world's smallest teddy with moveable, jointed arms and legs is just 4.5 millimetres tall. Tiny Ted, as he is known, was sewn by South African Cheryl Moss, who specialises in making 'microbears'. 'TT' is on display in a museum, under a magnifying glass.

GREAT BEAR

The world's largest teddy was made in Mexico in 2019 and displayed in a football stadium. It was created to celebrate Children's Day, which happens in Mexico every April 30th, with fun events in schools instead of lessons. Hooray!






HIGHLY INVENTIVE



LONNIE JOHNSON

Hi! I'm Lonnie Johnson, a US space engineer who went on to invent not one, but two of the world's top toys. You could say that all my achievements so far have been out of this world!

Back in 1982, I was working for the US space agency NASA on eco-friendly ways to keep a space probe cool on a trip to Saturn. I wanted to use water rather than the damaging gases in fridges, so I designed a special water nozzle that I tested on a tap in my bathroom at home.

SPLOOSH!

It shot a strong stream of water across the room and into the bath. Never mind space, I thought it would make an ace **waterblaster**, so I set about building a prototype in my basement.

My first working model was made from plastic piping, a fizzy drinks bottle and other bits and pieces. I gave it to my **seven-year-old daughter Aneka** to test, and it was a hit. She soaked her friends – and they loved it!



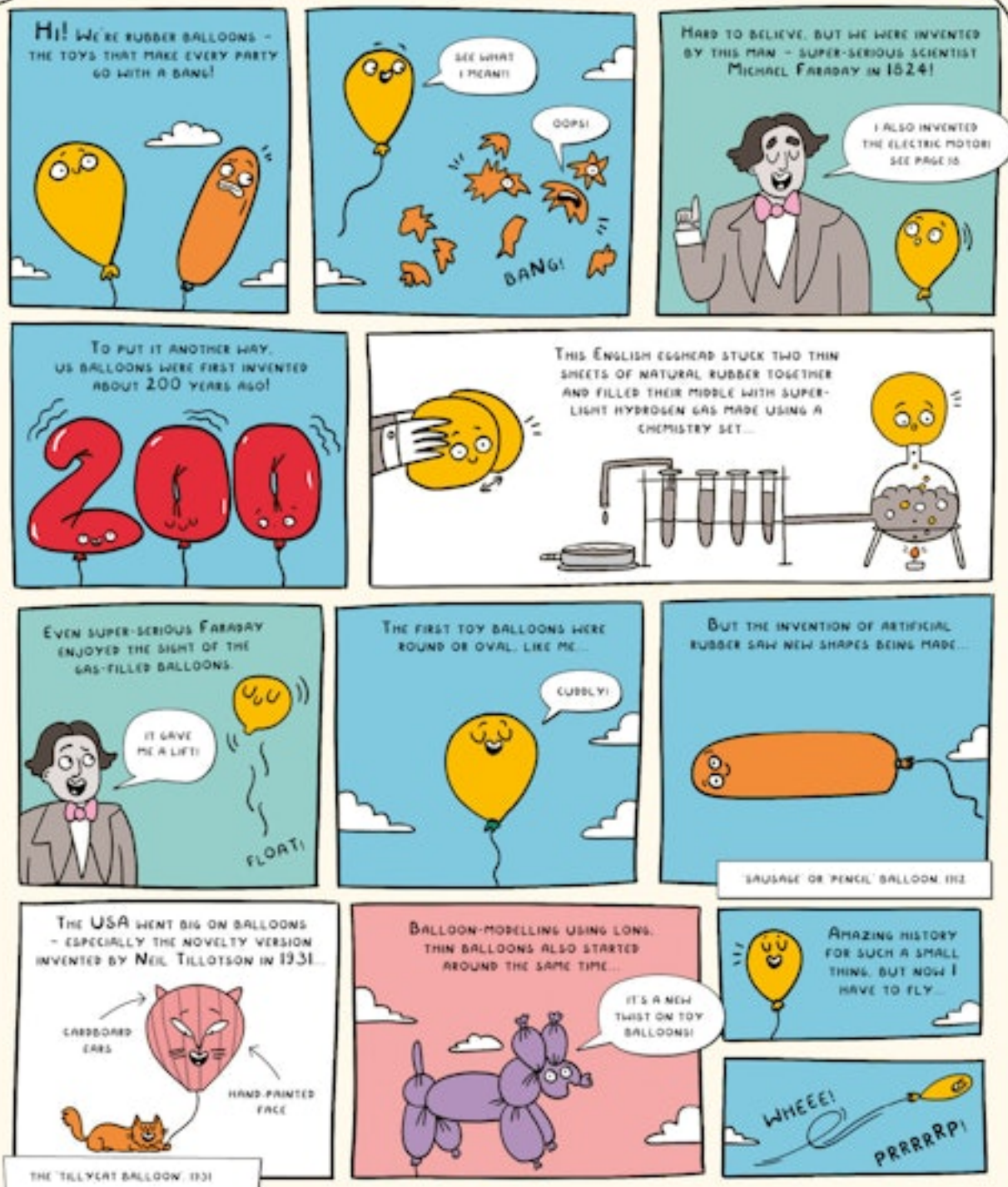
Next came the hard part: getting my invention into the shops. It was too expensive to make and market myself, so I went into business with a toy company that launched my '**Power blaster**' in 1990. Kids went crazy for it!

Don't recognise the name? Well, a year later it was relaunched as the '**super soaker**'. An even bigger toy company then took it over and today it has sold over 250 million units worldwide. Just think of all those fun water-fights!



But, hey, I didn't stop there. In 1996, I adapted my design to fire soft foam missiles using air not water, and the Nerf Blaster was born. Frankly, I'm a hot shot when it comes to creating toys, and I want to see lots more Black inventors like me! **Go for it!**

TOY BALLOON



PLANET MIRTH!

There's a whole world of fun to be had from playing games. Here are some popular pastimes from across the planet.

Danger game **Jenga** was created in Ghana, Africa, by Leslie Scott and launched in 1983. She took the game's name from 'kujenga', a Swahili word meaning 'to build'.



Galimoto wire cars are the ultimate recycled ride. The toys are made from scrap wire by children in many African countries and are popular tourist souvenirs.



Rubik's cube is probably Hungary's most infuriating invention. Created by architect Ernő Rubik in 1974, a cube can be twisted 43 quintillion different ways!



The board game **Ludo** is based on the ancient Indian game pachisi, where players threw cowrie shells to score points instead of rolling dice.

Sophie the giraffe is a famous French toy that babies love to chew. They have been nibbling on its natural rubber neck since 1961.



CHAPTER 7 RUN AND JUMP

Humans are highly competitive. Early sports events may well have been stone and spear throwing, like the javelin and shot put of modern athletics. The ancient Greeks gave sports a spurt, but many of our most popular games were invented less than 200 years ago. Now, grab a stopwatch and a friend: who can read this introduction out loud the fastest?

WORLD'S FIRST OLYMPIC CHAMPION

Coroebus of Elis, a cook, won the **foot-race** at the first recorded Olympic Games held in ancient Greece in 776 BCE. He was handed an olive wreath and hailed a hero.



WORLD'S SECOND BEST SPORT



After football, comes **volleyball**. It was invented in the USA in 1895 as a cross between basketball and badminton, and originally called mintonette.

WORLD'S OLDEST BALL GAME



Ancient Mayans played a game using a solid ball of natural rubber on special courts over **2,000 years ago**. The ball was so heavy it probably broke bones.

NEWEST OLYMPIC SPORTS



Breakdancing, surfing and skateboarding are all new Olympic events. 13-year-old Momiji Nishiya of Japan won the women's **street skateboarding** in the 2020 summer games, making her the third youngest Olympic gold medalist.

FOOTBALL

Hi! I'm a super-modern football - 20 plastic panels, eco-friendly printing, and...

...fast and accurate in flight. Not like balls before me...

The oldest surviving football dates from 1540, and Queen Mary the First of Scotland...

ON ME TIERA SON!

OCH AYE YOUR MAJESTY!

KICK!

For centuries, people used blown-up pigs' bladders as balls...

Later, leather covers were added, but balls didn't always roll right...

Luckily, US chemist Charles Goodyear invented a new type of strong rubber in 1839...

SPORTING OF ME, EH?

Rubber bladders were used inside leather balls but went flat during matches...

Leather balls also soaked up rainwater making them heavy...

Balls changed a lot over the years...



The 32-panel football was introduced in 1962...

20 hexagons and 12 pentagons.

Oh this is football, not maths.

And a ball with black patches called the Adidas Telstar was used in the 1970 World Cup Finals...

I was easy to spot on TV!

Today, many hi-tech balls contain microchips so they can be tracked...

I hope they find me up here.

Bye!

WHATEVER NEXT?

KICK-START

SOCK-ER STAR

Brazilian striker Pelé is considered the world's greatest football player with a career total of 775 goals. Born in Bauru, São Paulo, he learned football in the streets using a grapefruit for a ball or a sock stuffed with newspaper.

PLAYING FOR KEEPS

The first FIFA Women's World Cup was in 1991, 61 years after the first competition for men. Unlike the men's tournament, the winning women's side gets to keep the solid silver trophy while the men's teams only get a bronze replica to put on display.

CAP IT ALL

Players earn a cap each time they appear in a match for their national side. The tradition dates back to nineteenth-century Britain, when players wore matching peaked caps rather than different coloured shirts to show which team they were on.

VANISHING ACT

The disappearing spray used by referees to mark the position of a defensive wall for a free kick was invented by Brazilian football fan Heine Allemagne in 2000. The pressurised can contains water and a small amount of vegetable oil that forms a short-lived white foam. Magic!

TABLE TENNIS



WHATEVER NEXT? HAVING A BALL

COLOURFUL IDEA

Ball pits have been bouncing around since 1976. Their Canadian creator Eric McMillan got the idea from looking at a jar of pickled onions. The world's largest ball pit was built in China in 2015, with over two million balls!

SOFT IDEA

Soft foam balls for safe indoor play were launched in the USA in 1969. Their inventor, Reyn Guyer, originally developed the material for fake foam rocks that kids would throw at each other as part of a prehistoric caveman game. Up! Don't hit me!

FRUIT LOOP IDEA

Basketball was invented in 1891 by Canadian PE teacher James Naismith. He nailed two closed-bottom fruit baskets to opposite ends of a gymnasium, and a ladder was needed to fetch the ball each time a slam-dunk was scored. The first basketball was actually a football.

BRIGHT IDEA

Tennis balls are made from two pieces of rubber with a stretched-8 shape. Most were once white, but it was found that 'optic yellow' balls were easier to see on colour TVs, though some insist they are lime green. Either way, dogs love 'em.

HIGHLY INVENTIVE



KANŌ JIGORŌ

Greetings! I am martial arts sensei (teacher) Kano Jigorō. I was born into a wealthy Japanese family in 1860, and sent to expensive private schools in Tokyo to learn English and German. But this is not all I learned.

Sadly, I also learned what it means to be bullied. Because I was small and quiet and thoughtful, other pupils often picked on me and beat me up. I wanted to defend myself against them, so I looked for someone to teach me jujitsu.



Jujitsu was an old Japanese fighting method. I started to learn it at university from some old masters of the art, fighting with stronger students over straw mats called tatami. But I also wondered if there were better, **more scientific ways** of fighting?

One day, I used my small size to get under a much stronger and larger opponent. I wheeled him over and around my shoulders. Scientific principles of gravity, force and momentum helped me win our contest. **Result!**



Over many years, I refined my methods – taking moves from jujitsu that fitted my ideas and rejecting others.

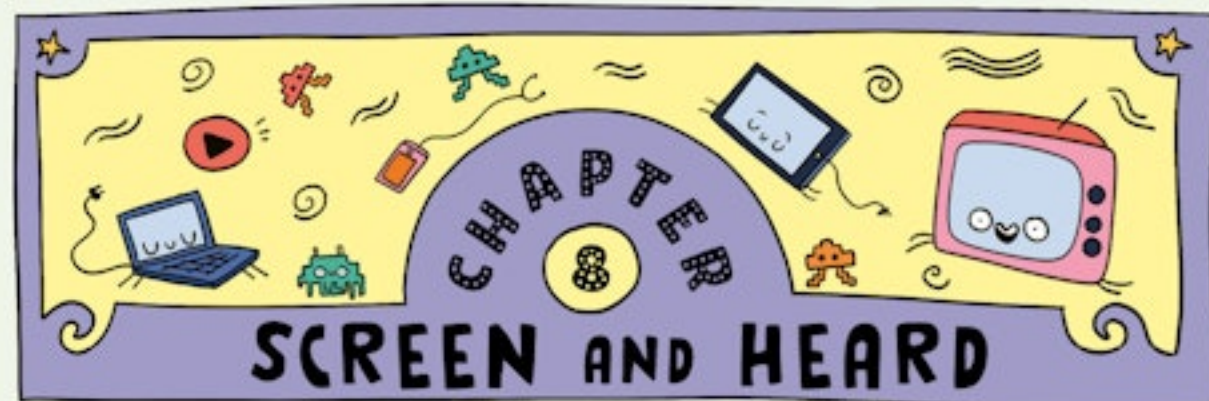
Vitality, I realised I could beat an opponent by simply unbalancing them.

This achieved the maximum efficiency with the minimum effort.



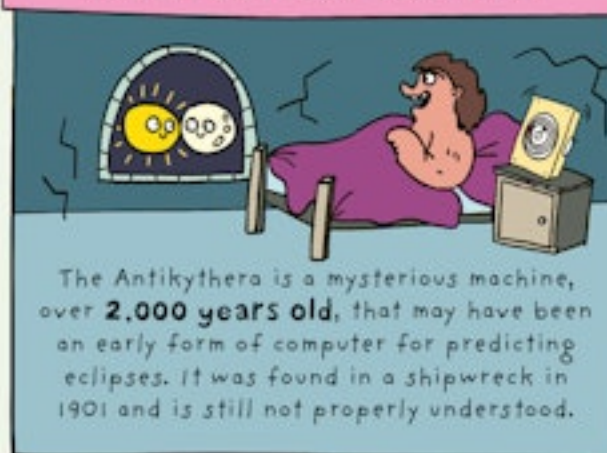
I called my new martial art **judo**, meaning 'the gentle way', because it was not all about strength. I opened my own judo school or *dojo* in 1884 and it soon grew from just twelve pupils to over one thousand!

Eventually judo went global, taking with it the uniform, belts, throws and philosophy I had invented. Then, in 1964, judo became the first Japanese sport to be adopted by the committee of the Olympic Games. Take that, you bullies!



Humans have been staring at screens for thousands of years. The first were probably the walls of caves, where flickering flames made drawings of bison and mammoths come alive. Then came paintings and printed pictures, before ebooks, TV screens and all our modern media. In this chapter, we get the lowdown on the hi-tech stuff that shapes our lives.

WORLD'S OLDEST COMPUTER



FIRST TV PERSONALITY

Stooky Bill was a scarily painted dummy used by Scottish inventor John Logie Baird as a stand-in for his first experiments in television in the 1920s. Understandably, he came across as rather wooden!



MOST POPULAR CHILDREN'S E-BOOK



MOST WANTED METALS



VIDEO GAMES

Hi! I'm a LONELY HOMEWORK BOOK. WHERE'S MY OWNER? WELL...

...PLAYING VIDEO GAMES. TCH!

THE ISSUE GOES BACK TO US SCIENTIST EDWARD CONDON IN 1940...

MY COMPUTER PLAYS A GAME WITH MATCHSTICKS.

ER, REAL MATCHES ARE A LOT SMALLER, DOCTOR.

THEN ANOTHER US BRAINBOX - WILLIAM HIGINBOTHAM - MADE IT WORSE IN 1958...

THE FIRST VISUAL COMPUTER GAME!

IT'S A SIDEWAYS LOOK AT TENNIS!

LUCKILY, THESE WERE ONE-OFFS, UNTIL SOME STUDENTS MADE SPACEWAR! IN 1962...

WE ONLY SHARED IT WITH LIKE 50 PEOPLE.

GIVE US SOME SPACE MAN!

NEXT, THIS GUY, US INVENTOR RALPH BAER, MADE THINGS UN-BAER-ABLE...

BAER WITH ME, PLEASE!

IN 1972, HE LAUNCHED THE MAGNOVOX ODYSSEY, THE FIRST HOME VIDEO GAMES CONSOLE...

HEH! HEH!

NOW OUR CONQUEST BEGINS!

IT HAD A TABLE TENNIS GAME THAT WAS COPIED BY A RIVAL COMPANY...

BLIP!

BLEEP!

PONG, AS THEY CALLED IT, BECAME THE FIRST ARCADE VIDEO GAME...

ME NEXT!

NO, ME!

A HUGE HIT, A HOME VERSION FOLLOWED IN 1975...

IT'S LIKE REAL TABLE TENNIS!

COMPLETE WITH FUNNY NOISES!

WELL, US HOMEWORK BOOKS HAVE BEEN COMPETING WITH VIDEO GAMES EVER SINCE...

WHAT'S YOUR HOMEWORK ABOUT?

HOW VIDEO GAMES BEGAN

HEY! IT'S ALL IN THIS BOOK. EASY!

TCH!

WHATEVER NEXT? GAME ON!

SQUID GAME

Launched in Japan in 1978, Taito's *Space Invaders* was a revolutionary arcade game. A tense 'shoot 'em up', it was the first to record player's high scores and had a musical score. Inventor Tomohiro Nishikado based the menacing aliens on crabs, squids and octopuses.

DO WEE AGREE?

The Nintendo Wii was launched in 2006, with motion-detecting remote controls allowing players to mimic sports. Some thought the word ('wee') sounded silly, but the company said the dotted 'i's were two people playing side-by-side and the 'W' was a pair of nunchuk martial arts weapons.

PLUMB CRAZY

The world's most expensive video game is an unopened copy of Nintendo's *Super Mario Bros* from 1985, which sold for a record \$2 million in 2021. Plumber Mario first appeared in the 1981 game *Donkey Kong*, and was originally called Jumpman.

THE YOLK'S ON YOU

The first so-called 'Easter Egg' was hidden in the Atari video game *Adventure* in 1979. The game's inventor hid the words 'Created by Warren Robinett' in a secret room without telling anyone. It was only discovered after he left the company. Now 'Easter eggs' turn up in films, books and on TV as well.



TABLET COMPUTER

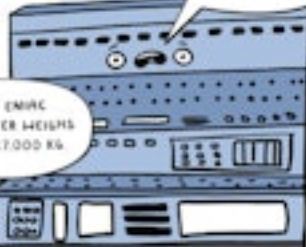
Hi! I'm an elephant - an animal with an amazing memory, supposedly...



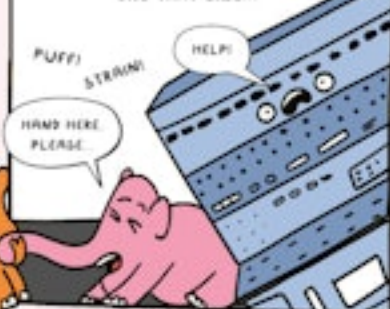
Well, I can certainly remember a time before tablet computers...



In fact, I can remember back to the 1940s, when computers were huge!



Even I couldn't have carried one that size...



Computers got smaller, but had only keyboards until 1968 when US inventor Douglas Engelbart created...



Hmm, well, it does if you do this to it...



The same year, US computer whizz Alan Kay had a great idea...



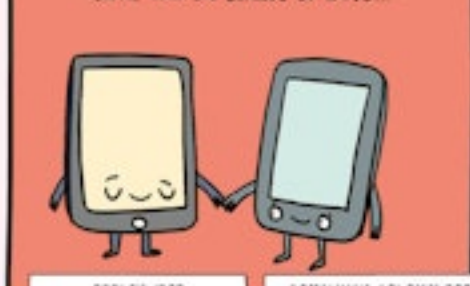
Sadly, it never got made. The world's first tablet computer was the GridPad in 1983.



Early tablet computers needed a special pen called a stylus...



Tablets didn't really make a mark until two big brands of 2010...



APPLE'S IPAD

SAMSUNG'S GALAXY TAB

What made them magic was touchscreen technology and a virtual keyboard...



Not that elephants find it easy to use...



ER, FORGET YOU SAW THAT, DEARY!



WHATEVER NEXT? OK COMPUTER

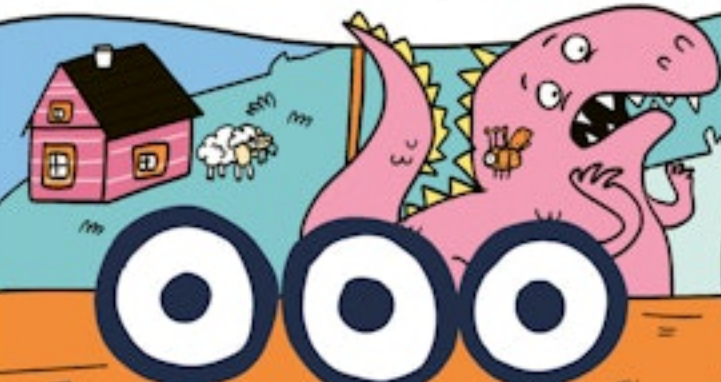
OH NO, THE DRAGONFLY IS DOWN!

Wireless linking system 'wi-fi' was first developed in 1990 by a US company that wanted to connect cash registers in stores. 'Wi-fi' does not actually stand for anything - it was just a catchy name that rhymed with 'hi-fi'. Earlier proposals included DragonFly or FlankSpeed.



DON'T BUG ME

A technical glitch in a computer is commonly called a 'bug'. The term is said to have been born in 1947 when US scientist Grace Hopper found a real insect inside an important computer, stopping it from working properly. The culprit was actually a small brown moth. (Sadly, dead.)



ROYAL CONNECTION

Bluetooth was invented by Swedish tech company Ericsson in 1994. It is named after the Viking king Harald Bluetooth, who lived in Scandinavia over 1,000 years ago. The Bluetooth logo combines the ancient Viking alphabet letters (runes) for the initials 'H' and 'B'.



GOLD STANDARD

The world's most expensive tablet ever is probably an iPad 2 that sold for £5 million back in 2011. The back was made from 24-carat gold with the Apple logo picked out in diamonds, while the front frame was made from a precious stone called ammolite that included a sliver of fossilised T-rex thigh bone.

HIGHLY INVENTIVE

JAWED KARIM



Hi! I'm Jawed Karim. I was born in Germany in 1979, and me, my little brother and our German mum and Bangladeshi dad all moved to Minnesota, USA, in 1992. Little did we know that was I destined to make internet history – all for just 19 seconds!

I studied computer science at college as well as working at the online payments service PayPal. That was where I met these guys, Steven Chen and Chad Hurley.



We were all frustrated by not being able to find clips of news stories and stuff like that to watch on the internet. This is when we came up with the idea to create our own video-sharing platform, YouTube.

Working out of a converted garage, Chad designed the site and the logo, and Steven and I worked on the programming. The site went live on **Valentine's Day, 2005** – but my big date was just a few weeks later, on April 23rd.



That was when we uploaded YouTube's first ever video, '**Me at the Zoo**'. It starred me and some elephants, and was shot at San Diego Zoo by a school friend, Yakov Lapitsky. It was very short but made internet history. Here's the whole thing:



Historic, huh? Amazingly, that first ever upload has now had over 284 million views. To me that's pretty impressive but, then again, '**Baby Shark Dance**' leads the way with over 10.8 BILLION! All together now...



SMARTPHONE



10:42



WHATEVER NEXT? APPY EVER AFTER

NOMNOM

Video-sharing service TikTok was developed in China in 2016. It is famed for setting some odd food trends including frozen honey, hot chocolate bombs, cloud bread and mini pancake cereal. Currently, the top TikTokker is Senegal-born Khabane 'Khaby' Lame with over 160 million followers.



BLUE BIRD

Micro-blogging site X (formerly Twitter) was hatched in the USA in 2006. It was originally launched as twttr - no vowels - as someone already owned the web address twitter.com. The company's previous blue bird logo actually had a name - Larry - and the world-famous design only cost them \$15!



SNAP APP



Instagram started in the USA in 2010. Its name is a mix of 'instant camera' and 'telegram' - an old way of sending messages. The first photo ever posted on the site was of a seaside pier in California, with the water at a 45-degree angle.

FAIL!



G

SEARCH ME!



Search engine Google began from a garage in California, USA, in 1996. The name is a nod to the billions of websites the service checks for information - a 'googol' being a one followed by 100 zeroes! Incredibly popular, the word 'google', meaning to look up something online, hit the dictionaries in 2006.



PUTTING US ENCYCLOPEDIAS OUT OF A JOB!

BRAVE NEW WORLD

Robots doing housework. Hologram humans standing in our living rooms. All these were once the stuff of science fiction films. Now they exist for real. Some of them, like smartphones, we even take for granted. But what new marvels might the near future have in store? Strap on your jetpack, we're going in!



THE JET SET

Jetpacks already have lift-off, but flights are either rather short or rather wet. Many models work using high pressure plumes of water and so need to be flown over lakes or the ocean. Fine for the school-run if you're by the sea!



INVISIBILITY CLOAK

A wizard idea that inventors have been pottering about with for many years. The principle is simple – bring the view from behind an object to the front so it seems to disappear – but complicated in practice. Still, we may see one eventually. (Or not, if you get what we mean.)



SWEET SMELL OF SUCCESS

Scientists in Scotland have invented a clothing fabric that produces electricity from the chemicals in human sweat. The energy can be stored and used to recharge electronic devices such as smartphones and watches. No sweat!



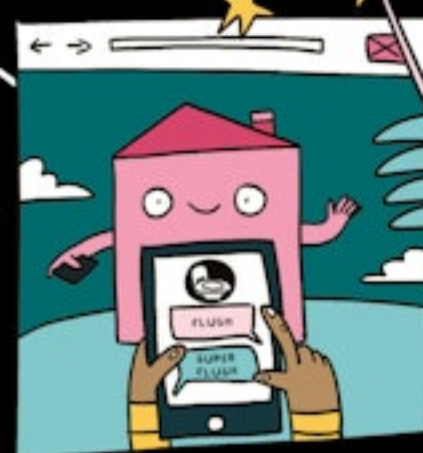
VISION OF THE FUTURE

Bionic eyes capable of super-sight have long been part of science fiction. However, in 2021, Israeli surgeons placed an artificial sensor inside an eye that restored the vision of a man who had been blind for a decade, allowing him to see his family once more.



ARE WE NEARLY IN THE AIR YET?

Yes! Flying cars are a reality, though only as a small number of prototypes. As well as design problems, there are issues of noise, pollution and safety, as well as finding spaces for them to land and take-off. However, it is thought the cars will probably fly themselves. Enjoy the view!



THINGS TO COME

'The internet of things' is a term for the home of the future where all appliances are connected and can be controlled remotely from a smartphone. Scientists have already made a hi-tech loo that monitors your weight and health. Imagine getting a text from your toilet!

HIGHLY INVENTIVE YOUNG WIZARDS



OHIO, USA

Hi! I'm legendary US inventor **Thomas Alva Edison**. I had over 1,000 patents for everything from the movie camera to a reliable electric lightbulb, and despite being deaf, I also invented an early way of recording sound. The public called me 'the wizard' for the wonderful things I thought up, beginning at the age of 22. But even younger people have 'lightbulb moments' like mine. Let's meet some of these 'young wizards'.



TAMIL NADU, INDIA

I'm **Rifath Sharook**. In 2017, aged 18, I created the first 3D printed satellite to be shot into orbit around Earth by US space agency NASA. It weighed just 64 grams – making it the smallest and lightest satellite so far!

I'm **Chester Greenwood**. Back in 1873, aged just 15, I was out ice-skating when I hit on the idea of earmuffs for keeping your lugs lovely and warm. My gran helped me make my first fur-lined pair!



MARYLAND, USA

I'm **Robert Patch**. In 1963, aged six, I patented my idea for a toy truck that could be taken apart and rebuilt in lots of different ways. I couldn't spell my name then, so I signed my design with an 'X'.



MAINE, USA

I'm **Louis Braille**. I was blind from the age of five but I still wanted to read. So, in 1824, I invented my own system for writing using raised dots on paper. It was named Braille, after me, and I was only 15 years old!



PARIS, FRANCE



WIMBE, MALAWI

I'm **William Kankwanba**. In 2001, aged just 14, I built a wind turbine to provide electricity for my family home in Wimbe village. It used parts scavenged from a scrapyard, including a bike wheel, and made me famous!



KITENGELA, KENYA

I'm **Sam Houghton**. In 2008, I invented a double-headed brush called the Improved Broom to help my Daddy sweep up. I was only five, meaning I am probably the world's youngest ever person with a patent!



MOLLONGONG, AUSTRALIA

Hi, I'm **Macinley Butson**, and I was just six when I invented a cross between a spoon and a syringe for taking medicine. I called it the Spoonie. Today, I'm a professional inventor!



POLOHASE, SOUTH AFRICA

I'm **Thato Kgatlhanye**. In 2014, I invented a schoolbag made from recycled materials with a removable solar-powered light. It helped children be seen as they walked to school in the dark, and could be used instead of a candle at home.



DERBYSHIRE, UK

I'm **Richard Turere**. Lions attacked our family's cattle at night so, aged 11, I invented my Lion Light. I used LED bulbs from old appliances and made them flash around to look like people carrying torches. No more lions!



MINNESOTA, USA

I'm **Abbey Fleck**. In 1993, at the age of eight, I invented a device for cooking strips of bacon vertically in the microwave. Less waste, more taste!

WHATEVER NEXT? PATENT'S PROGRESS

Any bright spark can have a bright idea. But getting from inspiration to an actual invention is quite a journey. It involves a lot of work, a lot of time and often a lot of money. Here's a possible path from 'Ping!' to product...

1. STRIKE IT LUCKY

PING! You are eating a banana when you are suddenly struck by a great idea: 'Fruit Loot' – points for eating fruit and veg you can swap for prizes!

2. KEEP IT QUIET

Don't tell too many people! A patent is a legal document that stops people copying your idea. You can't get one if others know about it already. Shhh!

3. CHECK IT OUT

Possibly someone else had the same idea? Search past patents and existing inventions on the internet and see if it's been done before.

5. DRAW IT UP

Sketch how your idea might look. Patent drawings don't need to be perfect but they help others get the picture.

4. WRITE IT DOWN

Grab a notebook and make dated, detailed entries about your idea. You may need to prove how and when you worked it out.

6. MAKE IT REAL

This is where it can get expensive. There are special lawyers who help inventors apply for patents, but they charge for their time – and time is money!

7. SEND IT IN

Now you must submit your idea to a national patent office. Their job is to check if it is genuinely new and useful.

8. SEND IT IN AGAIN

New ideas are often rejected first time. It is part of the process to make sure only serious ideas get patents. And it can take several years...

9. WHOOP IT UP!

Woo hoo! You've been granted a patent, meaning no one can copy your idea in your home country for the next 20 years. Now do the same worldwide.

10. MAKE IT BIG

Congratulations! Your invention is being made and sold all over the globe. Just one question remains: what will you buy with your first million?





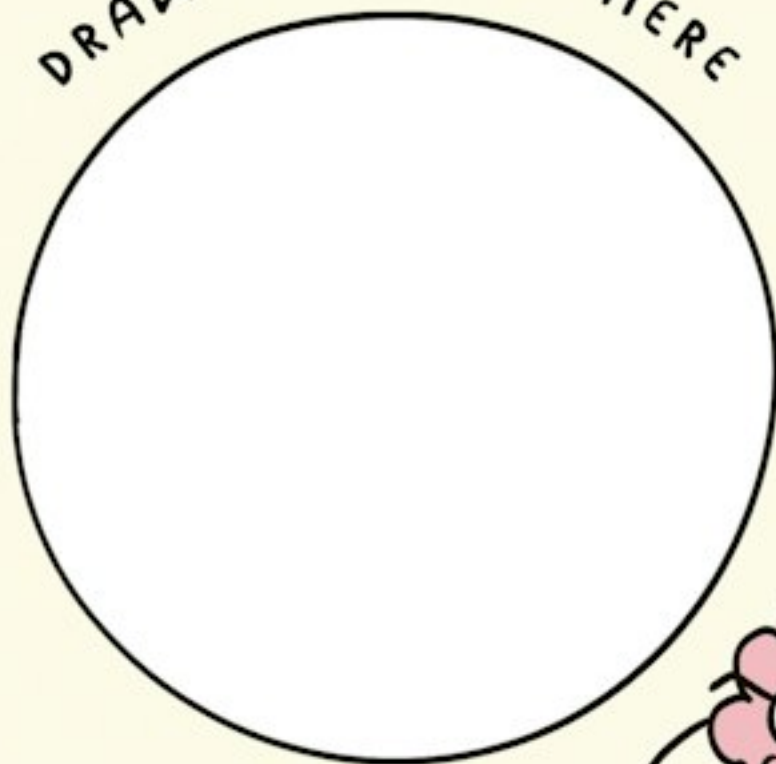
JUNIOR GENIUS



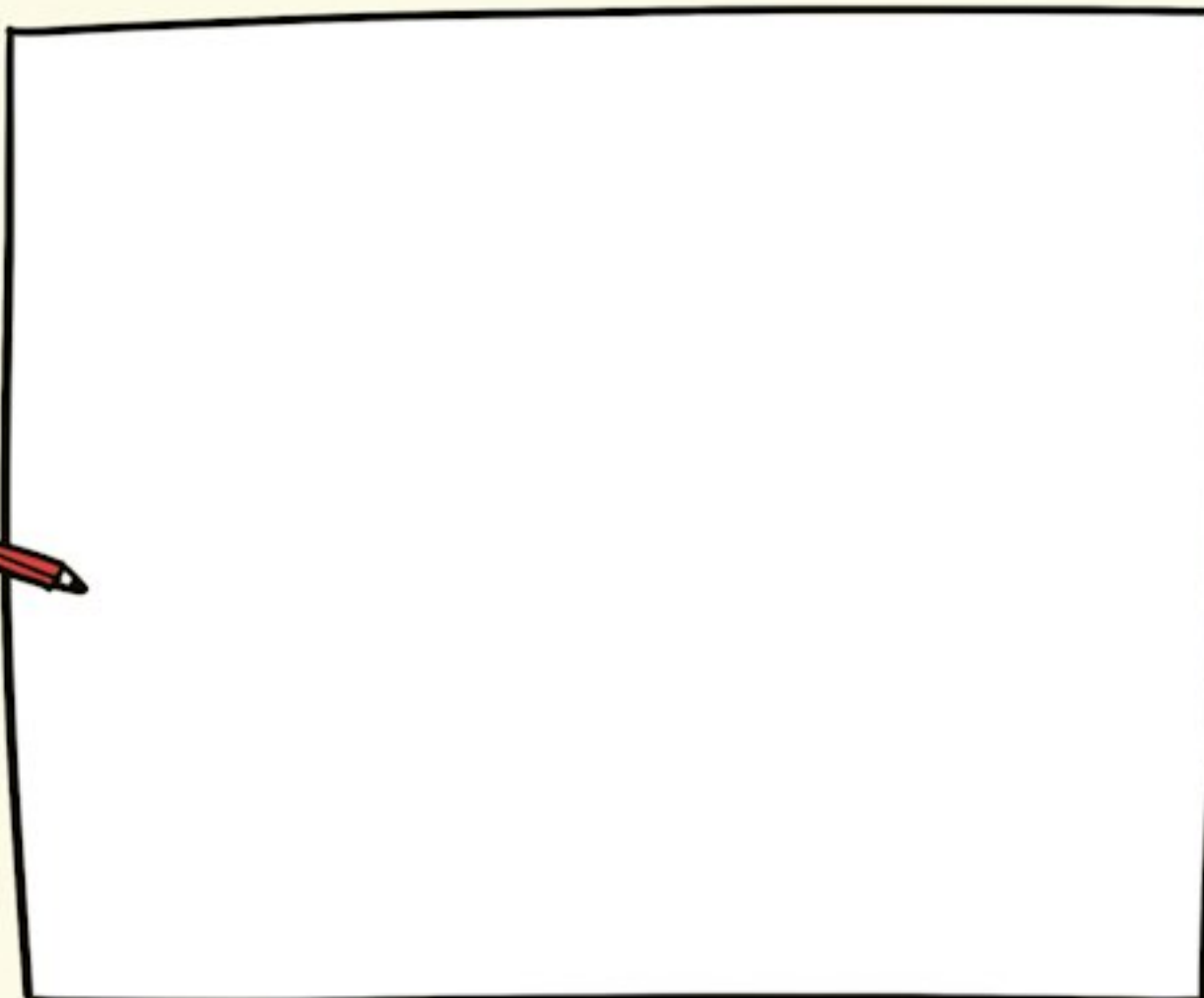
Have you got an amazing new invention?

(Copy this page and jot down your ideas - remember to keep it secret until you have a patent for it!)

DRAW YOURSELF HERE



DRAW YOUR INVENTION HERE



NAME:

BORN:

WHAT IS IT CALLED AND WHAT DOES IT DO?

.....

.....

.....

.....

.....

HURRAH! YOUR INCREDIBLE INVENTION HAS MADE YOU MILLIONS! WHAT WILL YOU SPEND IT ON?

.....

.....

.....

