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UNLOCKING SECRETS OF THE SOLAR SYSTEM



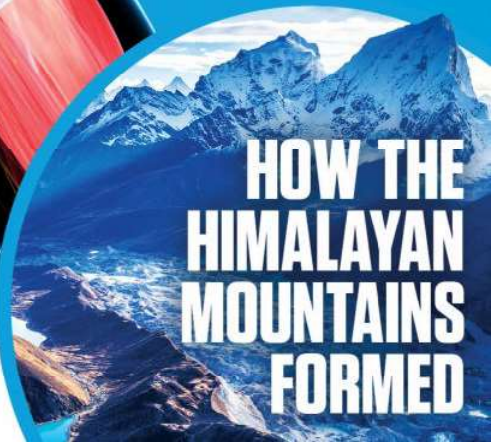
EXPLORE EMPEROR QIN'S DEADLY TOMB



DISCOVER WHAT LOVE DOES TO YOUR BRAIN

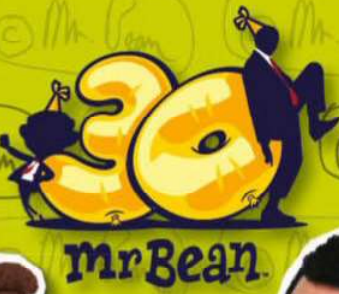


SELF-MANAGING ROBOT WONDERS



HOW THE HIMALAYAN MOUNTAINS FORMED

+ SUPER-STRONG METALS WHO WAS TYPHOID MARY? SHOTGUN ANATOMY



Mr Bean



and **BRILLIANT***
 The beloved ~~ed~~ Mr Bean famously
 drives a 1976 British Leyland Mini 1000
 on his adventures. The 'Citron' lime green
 coloured car is fitted with numerous
GENIUS
~~bizarre~~ security features including a
 bolted latch and padlock on the driver's
 door and a removable steering wheel.

← Not on this tiny model!
 * NB: This product description has been
 skilfully corrected by
 Mr Bean
 (of London)



CC82115 Mr Bean's Mini



Visit our website at
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WELCOME

The magazine that feeds minds!



“The heart has to pump between three and four times more blood during a race”

Inside the body of a runner, page 18

Meet the team...



Nikole
Production Editor
The European Space Agency's Solar Orbiter is on its way to study our Sun and its poles. Learn more about its mission on page 64.



Scott
Staff Writer
What's inside the unopened tomb of the First Emperor of China and why hasn't anyone looked inside? Find out on page 28.



Baljeet
Research Editor
How does our brain feel love, and what changes in our body are caused by this powerful emotion? Explore the science of love on page 36.



Duncan
Senior Art Editor
Turn to page 56 to see how advanced self-managing robots are helping humans in different ways and making our lives better.



Ailsa
Staff Writer
The Himalayas are home to the world's tallest mountains and lots of rare animals. Discover how this land came to be on page 44.



Long-distance running is hard... we can all agree on that. Just watch a marathon and you'll see people straining and sweating their way through. You might be surprised at the toll it takes on the human body though – and the benefits, despite the short-term damage that's done to the heart and lungs. In this issue's special feature, we explore what the benefits of training for a marathon are, the impact that race day has on your body at every mile, what muscles are employed with each stride and why certain running recovery techniques are so effective. It's a fascinating read whether you're a keen runner or just interested in human biology.



Ben Editor

How It Works magazine @HowItWorksmag

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How distance running pushes you to physical extremes and can change your body forever

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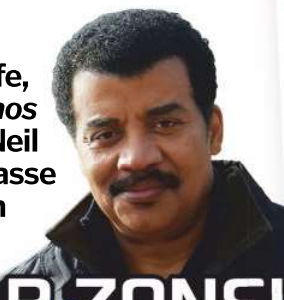
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AR ZONE!



Scan the QR code with your device's camera or download a free QR code reader app. Many iPhone and Android devices include a QR reader



When you see the AR ZONE! logo at the top of a page, use your phone to scan the QR code, which looks like this



Hold your mobile device over the image and watch it come to life! Your device needs to be connected to the internet for this to work

HOW THE AUGMENTED REALITY WORKS

After being launched by the QR code, the app reads anything you point your device's camera at 30 times a second, searching for distinctive shapes we've trained it to recognise. When it sees a familiar picture, it overlays the augmented-reality 3D image we've previously uploaded on your screen.

MEET THIS ISSUE'S EXPERTS...



Jo Elphick

Jo is an academic lawyer and lecturer specialising in criminal law and forensics. She is also the author of a number of true crime books.



Mark Smith

A technology and multimedia specialist, Mark has written tech articles for leading online and print publications for many years.



Andy Extance

Andy is a freelance science writer based in Exeter, UK. He previously worked in early stage drug discovery research, followed by a brief stint in silicone adhesive and rubber manufacturing.



Dr Andrew May

Andrew has a PhD in astrophysics and 30 years in public and private industry. He enjoys space writing and is the author of several books.

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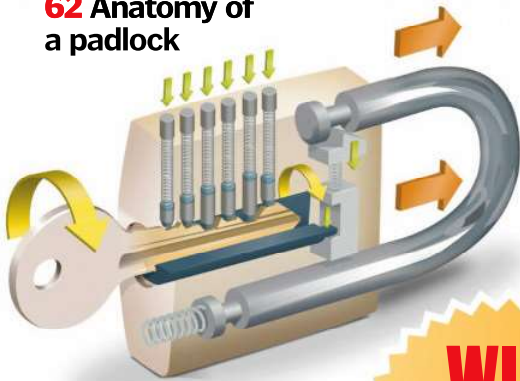
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WIN!
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Amy Grisdale

Volunteer animal worker Amy has an enormous breadth of experience on animal conservation projects. She specialises in writing about environmental topics.



Steve Wright

Steve has worked as an editor on various publications. He particularly enjoys history feature writing and regularly writes literature and film reviews.



Stephen Ashby

Stephen is a writer and editor with video games and computer tech expertise. He is endlessly intrigued by Earth science.



Laura Mears

Biomedical scientist Laura escaped the lab to write about science and is now also working towards her PhD in computational evolution.



Jack Parsons

A self-confessed technophile, Jack has a keen interest in gadgets and wearable tech, but also loves to write about projects with much grander ambitions.



Mike Jennings

Mike is a freelance technology journalist who is fascinated with gaming, futuristic technology and motorsport.



MIGHTY MANDIBLES

Scurrying beneath the undergrowth, these beastly beetles can grow up to around eight centimetres long. Male stag beetles (*Lucanus cervus*) are most recognisable by their impressively oversized mandibles, reminiscent of a male deer (stag), hence the name. However, the female members of the species, like the one pictured here, are much smaller: around three to four centimetres long. This stag beetle was captured using light microscopy by Viktor Sykora for The Royal Photographic Society's 2019 science photography competition. You can find out more about this year's entries at rps.org/spoty.



STORMY JUPITER

Jupiter is well known as one of the Solar System's most volatile planets. As a gas giant, Jupiter is mostly made up of hydrogen and helium, which surrounds a dense rock and ice core. Filling its gaseous atmosphere are bountiful amounts of hydrogen, helium, ammonia and methane, swept into massive storms by the planet's aggressive winds that reach up to 539 kilometres per hour. This stormy scene of Jupiter's northern hemisphere was captured by NASA's Juno on its 20th pass of the planet. Orbiting between 8,600 and 18,600 kilometres above the giant storms, Juno snapped the swirling, high-altitude, bright-white clouds, commonly referred to as 'pop-up' clouds.



