

CURIOUS?

IFLSCIENCE

WHY IS MODERN LIFE
SO EXHAUSTING?

IS THERE A CORRECT
WAY TO PRONOUNCE
DINOSAUR NAMES?

JUNE 2026

Should You Clone Your Pet?



16



WHERE ON EARTH

WALKING THROUGH THE JURASSIC

England's Jurassic Coast is home to some of the most famous fossil sites in the world.

7

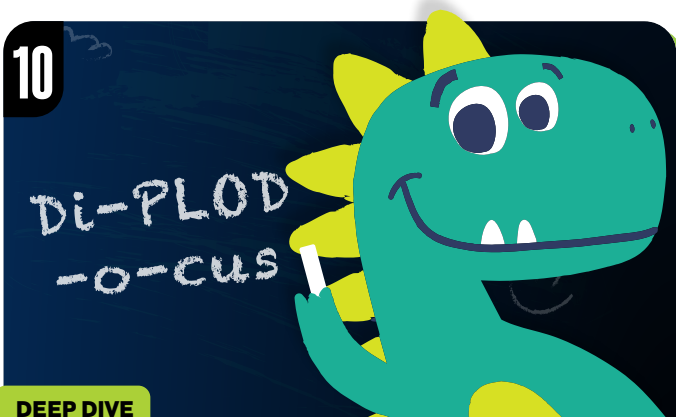


WHAT ON EARTH

NATURE'S MOST EXTRAVAGANT NYMPH

Fashion is function for these flamboyant insects.

10



DEEP DIVE

IS THERE A CORRECT WAY TO PRONOUNCE DINOSAUR NAMES?

Dip-lo-doc-us or *Di-plod-o-cus*? Katy Evans asks palaeontologists, is there a "correct" way to say dinosaur names, and does it matter?

4



COVER STORY

SHOULD YOU CLONE YOUR PET?

Our beloved animal companions don't live forever, but could – and should – cloning change that? Holly Large investigates.

JUNE 2026

CONTENTS

PAGE 2 | NEWS BITES

What's new, what's weird, what's happening?

PAGE 8 | WE HAVE QUESTIONS

Why Is Modern Life So Exhausting?

PAGE 14 | BOOK BITES

GRB221009A – Or The Day Earth's Atmosphere Took A Beating

PAGE 15 | MEET THE AUTHOR

Dr Alfredo Carpineti on *Invisible Rainbows*

PAGE 18 | SCIENCE IN MEDIA

What to watch, read, and listen to this month

PAGE 19 | DATES TO REMEMBER

What to look out for this month

PAGE 20 | DARK VS. LIGHT

How will you end the issue?

EDITORS

Katy Evans
Rachael Funnell

CONTRIBUTING WRITERS

Holly Large
Katy Evans
Rachael Funnell

ART & DESIGN

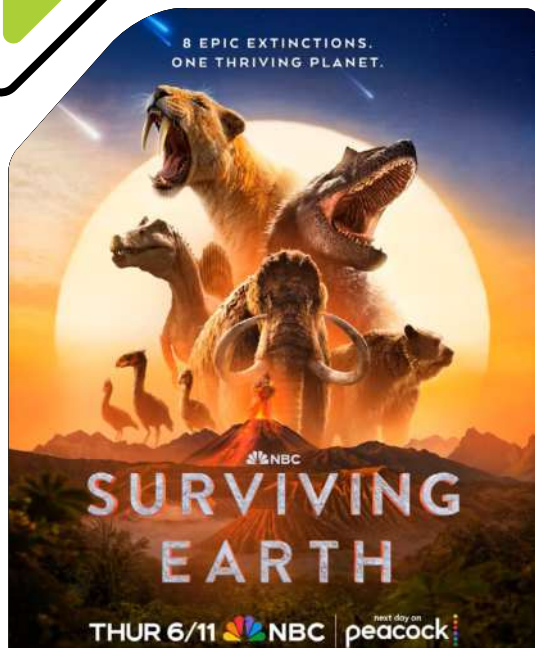
Greg Brewer

NEWSBITES



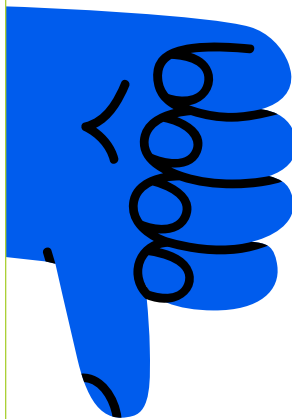
The Big Questions New Season!

IFLScience's flagship podcast, *The Big Questions*, is back for a brand new season starting June 11. We've got a whole host of new questions we're putting to the experts, ranging from the theoretical to the curious to the just plain nosy. Kicking off with chatting to SETI about not can we but *should* we send signals to aliens, we also speak to professionals about the next frontier in dementia research, how you name a new species, whether AI could find a cure for cancer, are natural disasters on the rise, the future of renewable energy, how queer is nature, can AI be conscious, how close are we to talking to animals, and have we really mapped only 1 percent of the ocean? Of course, we always throw in a bonus episode or two, so keep an ear out for them later in the year. Available on all your favorite podcast apps, find out more [here](#).



Surviving Earth

Summer TV viewing is kicking off with an epic eight-part documentary from NBC/Peacock that brings Earth's most dramatic tales of survival to life. Earth has had a pretty bumpy ride in its 4.54 billion years, with catastrophic environmental events that have changed the course of our planet, and yet, as a famous chaotician once said, "Life, uh, finds a way." With five – **or six** – major extinction events in Earth's history, life has been surprisingly resilient. Meet the deep-sea weirdos of 450 million years ago, the dinosaurs that ruled the planet for 180 million years, or the Ice Age megafauna that lived for hundreds of thousands of years. Experiencing events from dropping sea levels to volcanic eruptions that shifted continents, meteor impacts with catastrophic repercussions to drastically changing climates, these ancient species triumphantly rose and dramatically fell, allowing something new to take over our planet. The story continues, but likely doesn't end, with us. *Surviving Earth* premieres on June 11.



Downvotes Are Good For You

You might think receiving a thumbs down on social media will aggravate or offend people, making them double down on their original hot take, but **new research** suggests it actually makes people engage more but with a softer tone. It seems negative feedback isn't isolating people online, which can lead to forming smaller groups with more extreme opinions, but encouraging them to actively participate, possibly trying to reclaim their reputation, the researchers say. Having downvotes or dislikes on social platforms could help reduce extreme discourse in online spaces by moderating discussions without silencing individual voices, they suggest.

Asteroid Day

June 30 is Asteroid Day, an annual event raising awareness of asteroid impact risks and planetary defense. The date commemorates the 1908 Tunguska event, when a massive airburst over Siberia levelled 2,150 square kilometers (830 square miles) of forest. Scientists later determined that the explosion – estimated around 12 megatons – was caused by an asteroid roughly the height of a 25-story building detonating up to 10 kilometers (6 miles) above Earth's surface. Today, planetary defense efforts have advanced significantly. Missions such as NASA's DART, which marked the first successful attempt to alter the motion of a celestial body, demonstrate how far humanity has come in preparing for potential asteroid threats. While Earth is far from asteroid-proof, these efforts are an incredible example of global cooperation to help safeguard the planet.



Summer Skywatching

Did you know that June has its own “unpredictable” meteor shower known as the June Boötids? It’s considered unpredictable because it’s mostly a slow shower, however, on random occasions, it has unexpected outbursts, like in 1998 when up to 100 shooting stars were seen an hour for over 7 hours. Before that, this had only happened three times on record in 1916, 1921, and 1927. Appearing to come from the direction of Boötes, the shower occurs between June 22 and July 2, peaking on June 27.

June is also the perfect time to see the “summer triangle”, noctilucent clouds, and the Milky Way’s glowing core. The summer triangle sees trio Altair, Deneb, and Vega, some of the brightest stars in the sky, create an eye-catching geometrical shape that handily signposts the Milky Way. Look east, even on moonlit nights, and Vega will be the easiest to spot as it’s the brightest, with Deneb below and to the left. The Milky Way goes straight from Deneb through the middle of Vega and Altair. To spot the rare noctilucent, or night-shining, clouds, keep an eye out during the twilight hours, just an hour after sunset or an hour before sunrise.

At the end of the month, it won’t look like a strawberry, but the June full strawberry Moon is the best of the year to see the **Moon illusion** in full effect, appearing unusually large and golden-orange low in the sky.



WHAT'S UP?

SWIFT RESCUE MISSION

It's boostin' time.



Name: Swift Rescue/Boost Mission

Appearance: One spacecraft gives another a little nudge upward.

Location: Earth's orbit

it, “the situation presented an opportunity to develop a way to advance American spacecraft servicing technology and raise Swift’s orbit.” The bonus? The observatory gets to do science even longer.

How's the boost going to work?

The first step is to try and slow down the observatory's drop in altitude; the boosting part of the mission will be most successful if the observatory can be kept at an average altitude of around 300 kilometers (185 miles), and it's already hit below 400 kilometers (250 miles). To do this, NASA has already temporarily shut off most of the observatory's science experiments.

The next part begins this month (exact date TBC) with the launch of a Pegasus XL rocket from private company Katalyst Space Technologies, which will be carrying the robotic spacecraft set to take Swift upwards. This'll be quite the achievement if successful, as it would be the first time a spacecraft has been used to capture a government satellite that was never designed to be serviced in space.

What will happen if it doesn't work?

The observatory will crash back down to Earth, a realistic possibility given the tight time frame for the mission and the fact that it's not been done before. Still, we'll be keeping our eyes peeled to see what happens – and our fingers crossed that it succeeds.

Taylor Swift is stuck in space?!

Wrong Swift, buddy.

Phew. What's being rescued then?

NASA's Neil Gehrels Swift Observatory, named after the late great astrophysicist Neil Gehrels. The observatory's mission, of which Gehrels was the principal investigator until his death, began with studying gamma-ray bursts – the most powerful explosions in the universe – but it ended up looking at all kinds of cosmic phenomena, including the interstellar comet 3I/ATLAS.

Has something gone wrong with it?

Kind of. The space telescope was launched in late 2004, and its mission was initially only supposed to last two years – but it's continued for over 21 years instead. Over most of that time, the observatory's altitude decreased gradually, but it's recently become more rapid, spurred on by upticks in solar activity.

Why is that a problem?

Because NASA has decided that it's not quite Swift's time yet. The agency could just let it fall down to Earth, but as they put

OUR COVER STORY

SHOULD YOU CLONE YOUR PET?

We've got the tech. Some people have the money.
But does that mean we should make version 2.0 of
our beloved fluffy companions?

By Holly Large

Pets, as energetic and youthful as they might sometimes seem, sadly don't live forever. But what if we could give them immortality? Not in the traditional sense – that's still far beyond current science – but in a more roundabout way. One that requires time, money, and maybe even a suspension of your moral beliefs: cloning.

Animal cloning 101

Before we find ourselves wading through any ethical debate, it's first important to understand how animal cloning works – if it wasn't already drummed into your head during high school biology, that is.

You'll need two kinds of cell. The first is a somatic cell, which is any cell in the body other than a sperm or egg (often a skin cell), from the animal you want to clone. The most important part of this cell in this process is the nucleus, which contains the recipe for reproducing the original animal: its DNA.

The nucleus from that somatic cell is taken out and placed into a second cell – an egg cell with its own nucleus removed, so you don't wind up with the DNA of another animal. This process is known as somatic cell nuclear transfer (SCNT).

With all the genetic information it needs to eventually end up as an adult organism, you can then give the freshly nucleated egg cell a quick zap of electricity, and it'll start dividing and developing into an embryo. This embryo can be placed into the womb of an adult female animal, left to gestate for however long is necessary, and then, eventually, the surrogate will give birth to the cloned animal.

From Dolly to dogs (and cats)

It all sounds surprisingly simple, but the success rate of animal cloning – how many SCNTs lead to live births – is low. It took scientists **277 attempts** before they successfully got to Dolly the sheep, the first mammal to be cloned in this way, back in 1996. Even today, with 30 years of refinement, the efficiency of the process depends on which species is being cloned, with success rates ranging anywhere from just **0.1 percent to 16 percent** (though some claim higher).

Still, it's enough that science has moved on from simply proving that cloning animals, and in particular mammals, is possible. As well as cloning for **conservation**, it's now possible to clone our companion animals, with the first cloned pet – a cat that was amusingly, albeit inaccurately dubbed "Carbon Copy" or CC – born in 2001.

And now, 25 years later, it's a fully-fledged business. In the US, this market is dominated by ViaGen Pets & Equine. For the low, low (*coughs*) price of \$50,000 dollars, they'll take a skin sample from your cat or dog – living or very recently dead – and use it to produce a clone of your pet. Big names such as Barbra Streisand, Paris Hilton, and Tom Brady have all cloned their pets with ViaGen, and so popular has it become that the company **reportedly** has a 5–7-month waitlist.

It seems business is booming – but should it be?

"EVEN ASIDE FROM ANY OTHER ISSUES, CLONING A BELOVED DOG OR CAT DOES NOT RESULT IN THAT DOG OR CAT BEING REBORN. IT RESULTS IN A DIFFERENT DOG OR CAT BEING BORN."

The same animal?

Given that \$50,000 is no small amount of money, you'd like to think it'd be guaranteed that you're going to get an exact copy of dear Mr Fluffy. But it's not – physically or personality-wise.

Remember how we said DNA is like a recipe? It's an apt analogy in this case. The instructions go a reasonable way to the end product, but you still need the ingredients and a decent oven. Much like an animal's environment, both of those things are variable. You can follow the instructions to a T, but if your oven's different to the one used by the person who wrote the recipe, or your baking powder is long past the best before date, you can end up with a different end product.

"Dogs and cats, like humans, are more than merely their genetic makeup. Even aside from any other issues, cloning a beloved dog or cat does not result in that dog or cat being reborn. It results in a different dog or cat being born, and the new dog or cat might not even be that similar to the 'original' dog or cat," **Dr Josh Milburn**, Senior Lecturer in Political Philosophy at Loughborough University, told IFLScience.

The clearest physical example of this is in cat coat patterns; the cloned kitty CC showed significantly different markings to its calico-colored donor. That's because, in cats, the environment in the womb

influences coat color and patterning, and CC developed in a different womb to the original animal.

But even if someone cloning their pet did end up with an animal that looked the same as its genetic donor, it's unlikely that they'll have the exact same temperament. Again, genetics isn't everything; right from the get-go, there could be changes ranging from subtle to significant that could affect a pet's behavior.

"The impact of lived experience and shared experiences is also part of what makes our pets unique. Clones would not experience identical conditions as their 'parent', which will also result in differences," explained **Dr Jacqueline Boyd**, Senior Lecturer in Animal Science at Nottingham Trent University.

Maybe they were born into a litter where they weren't the most dominant. Maybe they spent those crucial first few weeks of life exposed to sights and sounds the original pet wasn't. Maybe an owner of a cloned dog will have learnt from the mistakes they made during the puppy stage last time and make shifts in how they train.

Even if you tried your level best, precisely replicating the experience of the original animal is nigh on impossible – and even the people who want you to drop your hard-earned dollars on pet cloning **admit this**.

The many, many ethical issues

What do people think of cloning animals? According to a **2025 Gallup poll**, only 34 percent of those asked believed that it was morally acceptable to clone animals, while 59 percent considered it to be morally wrong. In an earlier 2002 poll, 82 percent of those asked opposed cloning dogs, cats, or other animals people keep as pets.

Of course, pet cloning was barely a thing at that time. If ViaGen's waitlist is anything to go by, it would seem at least some attitudes have changed as the technology has evolved.

"Ironically, I completely understand the desire to clone a loved pet," said Boyd. "Our pets almost always have a lifespan shorter than our own and their loss can be linked with severe grief and feelings of loss. The wish to keep a loved pet alive is a very real desire observed in pet caregiving, and cloning, for some people, offers that as an option."

That desire is where the ethical issues of cloning begin to crop up. "What factors are driving the desire for cloning? [What is] the intended 'purpose' of the clone/s?" Boyd posed.

"Some pet cloning is simply the desire for a much-loved pet to 'live forever' (even though cloning is not a guarantee of an exact replica at all), but there could be commercial and potentially nefarious purposes for cloning that are not in the best interest of the pets involved," she added.

Then there's the matter of health and welfare for the animals, from the original pet through to its eventual clone. Does the process cause them what is – given that no one actually *needs* to clone their pet – unnecessary suffering? For example, a tissue sample being taken from the original pet could cause the animal pain and distress, though it could be argued that this is no more so than with many standard veterinary procedures.

The story gets more complex for surrogates and donors, however, which "might have more potential welfare concerns relating to the approaches needed to support the recovery of eggs and potentially invasive procedures for the transfer of the 'fertilised' eggs – both of these procedures might involve use of hormonal treatments also," said Boyd.

None of the animals involved are able to consent to any of this either. We might be happy to have a "duplicate" of our beloved pet, but are they all losing their agency in the process?

"The surrogate might have issues related to pregnancy and parturition [giving birth] too," Boyd pointed out. "Some clones are known to be excessively large, which is clearly potentially problematic."

These clones might also go on to have **health issues** – cloning is an "imperfect science," said Milburn – although it's worth noting that this is a problem faced in regular reproduction too, and, like non-cloned animals, cloned animals **can age normally** and healthily too.

Outside of the science of it all, there's the money. If we're being real for a second, pet cloning isn't exactly affordable for the average individual – and there's an argument to be made that cash spent on cloning would be better spent elsewhere.

"There are specific ethical concerns about pet cloning when there are many, many unwanted pets seeking good homes and the money involved in cloning procedures could actually help those animals," said Boyd.

It's a sentiment echoed by Milburn. "Dogs and cats are sitting in shelters, waiting to find a home, and many of them face being killed if they can't find one. Rather than paying lots of money to create a new dog or cat, people should

adopt a dog or cat who needs a home. They could instead spend the very large amount of money they would have spent on cloning an animal on making the world better for the animals who already exist."

Technology is also quickly advancing to a point where we can help existing pets to live longer, and healthier too. Biotech company Loyal, for example, has been developing lifespan-extending drugs for dogs; two of these products – one for **big dogs**, and the other for **senior dogs** – have reached key milestones on the road to FDA approval.

This approach comes with its own ethical issues, but some may see it as a more desirable alternative to cloning, even if it's still not a way to cheat pet death entirely.

It's up to you

The ethical questions covered above are only the tip of the iceberg – and they, together with the question of whether or not you should clone your pet, don't necessarily have answers, or at least not a single one. Opinions and decisions ultimately come down to the individual.

But if someone does decide that pet cloning is for them, what are the kinds of things it's recommended they look out for? The "green" and "red" flags, as my fellow Gen Zers would put it.

For one, it's important to make sure that a company knows what it's doing. Boyd says that fully qualified staff, using up-to-date evidence, clear and thorough recordkeeping, and proper management of biological samples are all "essential".

Do they stick to the rules? "Ultimately, compliance and adherence to local/national legislation about animal welfare and all associated procedures would be critical in exploring cloning as an option," said Boyd. "The origin, care, and management of any surrogate animals need to be fully verified also – even afterwards."

That's the kind of stuff that usually comes with a hefty price tag attached; Boyd suggests that a company presenting itself as cutting costs "would [in my humble opinion] be a red flag!"

"The aim [or] intent of the company offering the service should also be considered," she added. "What is their motivation? That could be a major green or red flag."

So, should you clone your pet? We've given you the lowdown on how it works and the questions to ask – some of them of yourself. The final decision? We'll leave that up to you. 🌟





NATURE'S MOST EXTRAVAGANT NYMPH

Back up! You have just been warned by a planthopper nymph. This fiber-optic display is one of several designs bursting out the back-ends of these insects. Others can appear more like bursts of cotton candy. They are multi-faceted projections used for defense, packaging waste, and balance; a **study** found nymphs with intact tails achieved a near-perfect landing rate of 98.5 percent. Sometimes fashion is function.



WHY IS MODERN LIFE SO EXHAUSTING?

Does a KPI make you want to cry? You're not alone.

By Rachael Funnell

Your smartwatch says you've walked 10,000 steps. Bluesky wants you to know you have 21 new notifications, and your job just found three new metrics to measure your productivity. Feeling tired? Aren't we all. And yet isn't it strange how this kind of score-keeping can be so invigorating when we're playing games?

The misery of metrics is something **CThi Nguyen**, Professor of Philosophy at the University of Utah and author of ***The Score: How To Stop Playing Someone Else's Game***, has thought about a lot. Here, he explains how the concepts of “Value Capture” and “The Gap” can help us understand why modern life is so exhausting when for so many it’s largely spent sitting down.

What is Value Capture?

CTN: Value Capture is when you have kind of rich, open values and then you get put in an institution and that institution feeds you simplified versions of those values. Then, the simplified versions take over. This is something that's just happened, like any number of times. It's happened on Twitter. It's happened with weight loss.

And what is The Gap?

CTN: The Gap is the gap between what's easy to measure and what's actually important. And I just want to say one thing for all the scientists [reading]. When I'm worried, in [*The Score*], I spend a lot of time worrying about what we can quantify. And there's a little bit about what the essential barrier to quantification [is] at its root, but most of this is about what's easy to quantify at scale.



The thing that's really interesting to me is that in large-scale institutions, what we see over and over again is people's attention gets captured not by rich qualitative descriptions, not by complex, careful, multi-dimensional quantitative analyses. They tend to be captured by extremely simplistic metrics. And I think they're the kinds that we all are familiar with: page views, Twitter likes, BMI, citation counts, grant numbers, like huge, obvious, simple numbers.

Why are we drawn to metrics?

CTN: I think what our attention is captured by is the qualities that are easy to count in unison. There are some things like happiness, joy, well-being, or even good mental health that are extremely hard to count at an institutional level. There are other things – graduation speed for students, screen time for our children, number of publications, number of years lived – that are incredibly easy to count in unison. I think the thing that I'm most worried about is the clarity and simplicity and usability of what's easily countable is swamping our attention and dragging our attention from what really matters, especially when what really matters is highly variable.

How does this tie into social media?

CTN: [Social media] is one of the first places I started thinking about this. It's such a clear case where you can see The Gap between what you might have originally valued and the easily countable. Because there are many rich values to communication and the values are plural. You can communicate to urge political action. You can communicate to learn. You can communicate to connect to people. You can communicate to feel intimacy with a small group of people.

These are all important reasons, but social media likes – because of the way they're structured – flatten the landscape of value because likes are binary. One person might have laughed for a quick second, clicked like, and forgot about it. Another person was moved to tears and had their life changed, but it's just another point.

What influence can these systems have on society?

CTN: Power goes to the people that are willing to game the system. Paul Smaldino and Richard McElreath's paper, "The natural selection of bad science", is a wild scientific paper about the problems of science.

It's a computer modeling paper and it says: "Let's build [the] following model. Here are the assumptions of the model. 1) More rigorous science takes more time, and less rigorous science takes less time. 2) Our rewards go to publication volume

– scientists get better jobs and get more grants for publishing more. Therefore, the scientists that will get the better jobs are the ones that are willing to do the minimally rigorous thing that will get to publication rather than the maximally rigorous thing."

Add the premise that young scientists in training will tend to imitate high-status scientists with high-status jobs and lots of grants and big labs, and what you get – if this model's assumptions hold true – is a feedback loop where science will really quickly devolve into crap as everyone races to the minimum bottom in order to meet the standard of measurability.

As long as there's any gap between what's important and what's easy to measure, and as long as our institutions reward people with power and prestige and resources for hitting the thin metric, then we should expect systems to promote people that are willing to give up on everything that's important and wholly game and optimize for the metric.

And what influence can they have on us?

CTN: The large-scale systems we're in were not built to make us feel joyful or refreshed or rejuvenated. They were built to get us to maximally optimize for the greatest numbers of outcomes.

I do find that modern life exhausts me. I have found a lot of relief in games, and I think it is precisely because you can tune games how you wish. I used to read a lot more philosophy and literature in my spare time, and now I just don't. I think it's my job now. But also, my job is 80 percent in front of a computer or reading a book. So, in all my spare time I now just seek ecstatic physical activity. It's all rock climbing and fly fishing and yo-yo and weird animal movement.

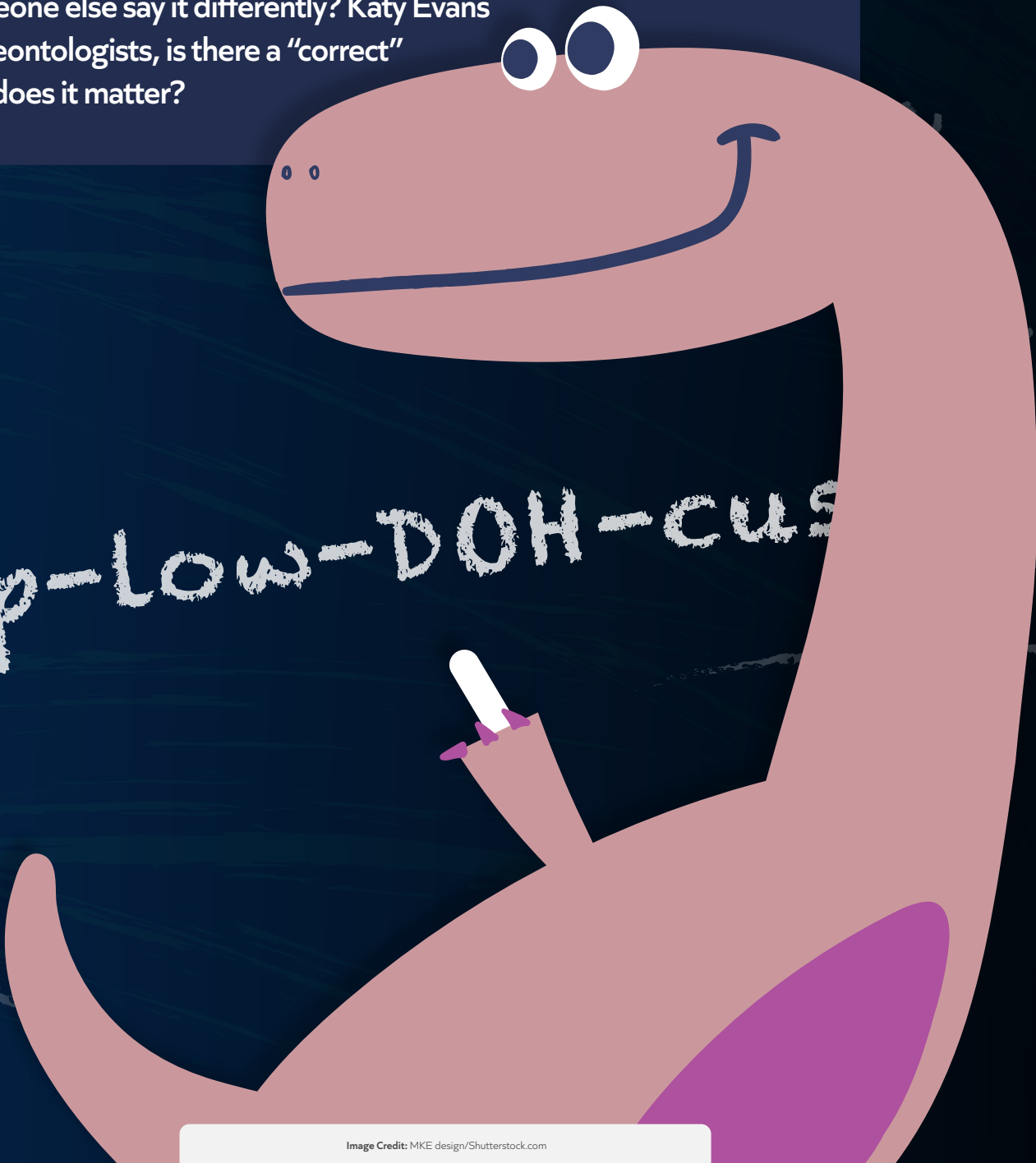
I'm choosing the things that I think I need as responses, but also a lot of those activities have been tuned to produce a feeling of satisfaction and openness in your life, body, and mind. Most of the activities we're doing in ordinary life are not. They're tuned for some completely other reason. The reason metrics feel so inhumane is they're not tuned to produce an experience of a good life, and a lot of games actually are. *



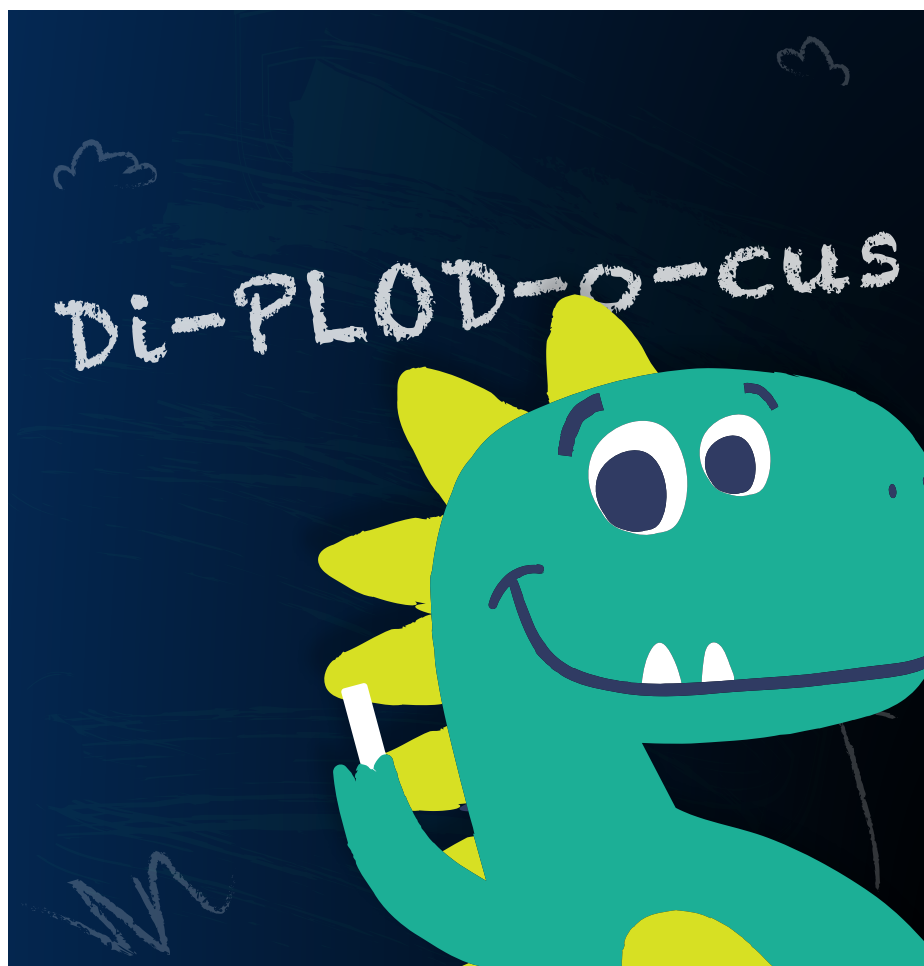
SCIENCE FACT OR FICTION:

IS THERE A CORRECT WAY TO PRONOUNCE DINOSAUR NAMES?

Confidently pronouncing *Parasaurolophus* only to hear someone else say it differently? Katy Evans asks palaeontologists, is there a “correct” way, and does it matter?



Dip-Low-DOH-cus



There's nothing quite like the feeling of being schooled by a 5-year-old on how you are pronouncing *Diplodocus* wrong. You know how to say it, thank you very much... you think. Wait, do you? *Dip-low-DOC-us* or *Di-PLOD-o-cus*? A secret third option?

There's a litany of reasons why you may be pronouncing a dinosaur name differently to your peers (and by peers, we mean everyone, from small children to professional palaeontologists). Perhaps you read it in a book when you were young and had never heard anyone say it aloud, or heard it for the first time in a movie, confidently mangled by a Hollywood star? But is there a "right" way to say them, and does it actually matter?

Much of dinosaur taxonomy comes from Ancient Greek and Latin, but since no one alive today speaks either as a native language, we can't just ask them. So, we did the next best thing and posed the question to palaeontologists.

You'll be pleased to know, they are not immune to being tripped up by their own personal taxonomic nemeses.

Why so many different pronunciations?

"The one I struggle with is *Parasaurolophus*,"

Professor Susannah Maidment, a palaeontologist at the Natural History Museum, London, tells IFLScience. "I always pronounce that in my head, *Para-saur-oh-LOW-phus*, and then I heard it being pronounced as *Para-saur-OLL-o-phus* and was like, oh, right. So I had to kind of change the way that I pronounced it, because then I thought, maybe I'm doing it wrong."

I heaved a sigh of relief and shared my own nemeses: *Carcharodontosaurus* and *Giganotosaurus*. We'll get onto them in a bit. I also share that I'm not quite sure where to put the stress on *Diplodocus*, despite it being the name of the most famous dinosaur specimen in

the UK. Dippy, the iconic cast of said specimen, was a resident of the museum for 112 years and I have heard it spoken aloud a million times since I was a child. Unfortunately, never the same way twice.

"I usually say *Di-PLOD-o-cus*, because it's made up of two syllables, which are Diplo and Docus," **Professor Paul Barrett**, Head of Fossil Vertebrates at the Natural History Museum, London, says. "So for me, it's obvious the stresses are on the two Ds, *Di-PLOD-o-cus*. But it's based on Greek, and that C sound should probably be more like a K sound if you're doing it as a classicist, so it would be something like *Dip-low-DOK-us* rather than *Dip-low-DOH-cus*, which might be the actual Greek way of saying it."

This hard K sound with a Greek C is also going to come back to bite us.

"And then there's the way my American colleagues say it, which is to slur it in the middle," Barrett says brightly, and proceeds to pronounce it how I can only describe here as *Dip-LAWT-a-cus*.

"I call it *Dip-low-DOH-cus*," Maidment grins.

Now, these are two British palaeontologists, based at the same research institute, and yet their pronunciation of the same name is completely different. How come?

Both point out that where you are from influences the way you pronounce linguistic sounds or place a stress.

It can even change depending on where you are or who you are talking to in that moment, Barrett says. Ancient Greek is often used in taxonomy but in the UK and the US we tend to soften the C sound, though not always, and often not even for the same words. One example Barrett gives is the word for the group of horned dinosaurs, Ceratopsians, based on a Greek word, *karas*, for horn.

"So it should be a K sound, not a C sound," Barrett says, "but my American colleagues say it with a soft C, and so I tend to call them *SERR-uh-top-see-uns* when I'm there, whereas here, I often call them *KERR-uh-top-see-uns*."

So, there's no real rule on sticking to how we imagine native ancient Greeks would say it.

In fact, because the "birthplace of palaeontology" is considered to be in Britain – the first dinosaur was found here – when it comes to taxonomic names, we often break them into syllables according to the rules of English rather than according to the words that compose them, despite their usually non-English origins.

"DESPITE LOTS OF PRACTICE, I CANNOT DO THE RIGHT KIND OF CLICK. I ALWAYS SOUND A BIT LIKE GOLLUM WHEN I TRY AND SAY IT."

Where do dinosaur names come from?

Listening to me mangle *Carcharodontosaurus* is probably making Barrett wince, but he has a very practical approach to how this one should be pronounced.

"The first two syllables are about equally rated, so it's *kar-kar-odon-toe-saurus*," Barrett says. "*Carcharodon* is the same genus name as the great white shark." As he explains, the name's Greek roots include *karcharos* (sharp), *odon* (teeth) and *sauros* (lizard), so understanding the meaning of the composite words that make up these names can help.

We have Carl Linnaeus, an 18th-century Swedish biologist, to thank for the way we name and classify the natural world. Known as the "Father of Taxonomy", he invented the two-part naming system of genus and species we still use today. European scholars of the 18th century used Greek and Latin precisely because they were dead languages – they served as universal academic languages, allowing scientists to share their discoveries without language barriers, and their meanings remained stable rather than evolving into new slang.



The first dinosaur, *Megalosaurus*, was named just over 200 years ago – 20 years, in fact, before the term "dinosaur" was actually coined. Many people will be able to tell you dinosaur means "terrible lizard" but in what language, Greek or Latin? (*You'll have to see to the end for that.)

In the early days of establishing dinosaur genera, names often came from descriptive characteristics like "mega" (great) and "giga" (giant) for large creatures or ending in "saurus" (lizard) or "don" (tooth). So, if you know the word's origin, it can help you pronounce it – in theory, at least. *Giganotosaurus* begs to differ, as we'll get to.

"Often, those rules are kind of ignored, particularly for the kind of names that are completely made-up from Latin and Greek, which people don't really know how to pronounce correctly anyway," Barrett says. "You often get Latin and Greek combined,

which is a chimera. It's not a real language. It's two things lost together."

The hardest names

So it seems a key component of why some dinosaur names are so hard to say is because we're trying to wrap our tongues around words that do not come naturally to us, thanks to the long-dead language aspect.

I asked Maidment and Barrett which name they think is the hardest to say, or at least which is the one they hear mangled the most.

"I quite often hear people struggle to say *Ankylosaurus*," Maidment told IFLScience. "People often say *Ank-LEE-oh-saurus*, and that's difficult to say, right? So people then end up saying *An-KEELO-saurus* or something like that. Whereas, if you pronounce it with an I rather than E, then it's easier. *An-KI-lo-saurus* is easier than *An-KEELO-saurus*. That's quite common."

"I don't trip up on it, but an interesting one is the longest dinosaur name, which is *Micropachycephalosaurus*," Barrett says. Impressed with how easily that rolled off his tongue, and curious, I try it out and find it quite easy myself: *micro-packy-seph-a-low-sore-us*.

"It's because all the syllables are quite hard syllables, so it's easy. There's no shush sounds or anything like that for it to go wrong," he explains, although he's quick to point out there are definitely names he struggles with.

"If I'm being honest, there are one or two names based in African languages that I just cannot say because to say them correctly, they require a click in the correct part of the name. And I, despite lots of practice, cannot do the right kind of click. I always sound a bit like Gollum when I try and say it."

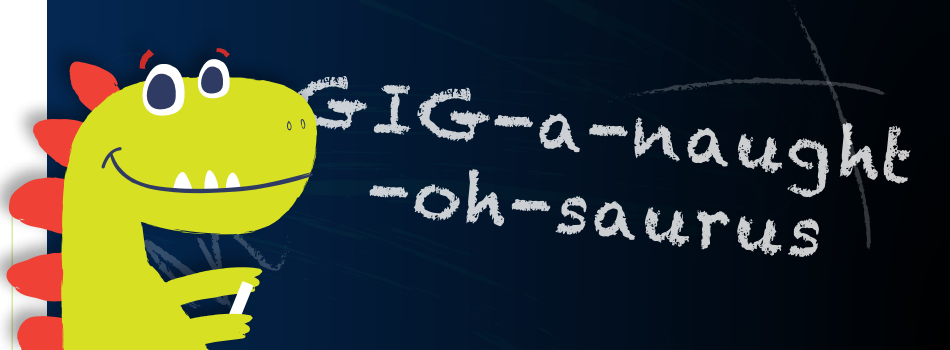
For example, *Nqwebasaurus thwazi*, a Cretaceous theropod from South Africa, has the "nq" click consonant derived from African languages. People struggling with names that are derived from languages that are furthest from their own is a theme Barrett warms to.

"Chinese dinosaur names can be quite difficult for people who don't know the stresses that the transliteration of Chinese characters have when they're anglicized and turned into non-Chinese fonts," he explains.

"I'm quite lucky, I've been to China a lot, so I have picked up on some of the more common things, like a ZH sound in Chinese is more like a J sound to an English ear. So if I see a ZH, I know it's kind of a *jong* sound, not a *zong*."

Of course, for Chinese speakers, the same is true. Mandarin has no dental fricatives, the sound made when you press the tip of your tongue against your upper teeth to produce a "th" sound, so often substitute with s, t or d sounds.

Probably the easiest Chinese dinosaur name for Westerners to get their tongue around is also the shortest dinosaur name: *Yi qi*, which means "strange wing" in Mandarin and is pronounced ee chee.



What's in a name

Today, the International Commission on Zoological Nomenclature is the global governing body that dictates rules about how we name things. It has to be proposed in print and it has to have a genus and species, for example. One important rule is that you can't use a name already in existence. Surprisingly, there are no rules that stipulate you have to use Greek or Latin. Luckily, there are over 7,000 languages in existence.

As Maidment tells me, we are finding on average a new dinosaur a week, globally, and while naming them still often includes describing characteristics, these more often than not reflect the location and culture of their place of discovery in languages very much alive rather than long dead.

"I named a dinosaur from the Middle Atlas Mountains of Morocco, and I called it "mountain lizard", which has been used before," Maidment said, "but I named it in Amazigh, which is the language of the Berbers who live in that region. So it was called **Adratiklit**."

It's really in the last decade that this has taken off, and now we have dinosaur names that honor Indigenous languages and leaders, local palaeontologists, myths, deities, and even pop culture, from rock stars to **cartoon characters**.

Barrett thinks naming dinosaurs after characteristics is actually less popular now, and there is more of an emphasis on creating more of a relationship with the place it comes from. "I think it's definitely become more prevalent to try and honour either the actual local area itself, the geography of where you are, or the culture of the area in which you're in."

While palaeontologists are embracing opening up the world of nomenclature to include multiple languages, it opens up a whole new world of potential mispronunciations and accidental mangling of scientific names. So, does it matter if you get it right? Short answer: yes, and no.

Is there a "correct" way?

As we've learned, lots of different factors influence the way we pronounce dinosaur names: our native language and the way we break down composite words or place a stress on syllables, our understanding of the etymology of a name, how we've heard it pronounced by others, even our physical ability to pronounce certain sounds.

Nothing exemplifies this more than *Giganotosaurus*, probably the name I have heard pronounced differently the most in my research. Reading it, it looks straightforward enough, right? And yet, I give you, *GIG-a-naught-oh-saurus*, *JIG-a-naught-oh-saurus*, *JYGER-note-oh-saurus*, *GYGER-note-oh-saurus*, *gig-an-OH-toe-SORE-us*, *jig-an-OH-toe-SORE-us*, and *JY-GANT-oh-saurus*, which confusingly, is actually a completely different long-necked herbivorous dinosaur, *Gigantosaurus*.

So, when it comes to dinosaurs, is there really a "right" or "wrong" way to pronounce them?

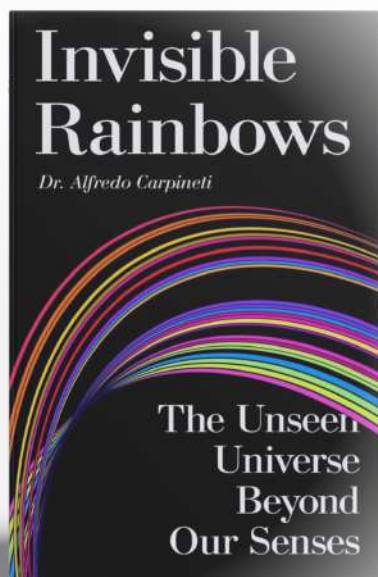
"I think the pronunciation doesn't matter, does it?" Maidment says.

"Of course, there are times when it does," she caveats. "If it's somebody's surname, you want to make sure that you pronounce it right. There are some [names] where there is going to be a correct answer; if it's named after a place, we pronounce that name in a specific way."

"I come down on the side of, in general, no, especially with words that are chimeras," Barrett agrees, "but we should be mindful of when those names are named after particular places or people, try and make the effort to get it right."

Those older dinosaur names that are based on made-up composites of dead languages no one alive has any idea how to pronounce are less important.

"I mean, they don't know, do they? Who cares?" Maidment says. After all, as we say in the UK, it's all *Greek to me. 🌟



This excerpt from IFLScience Space Editor Dr Alfredo Carpineti's new book *Invisible Rainbows* describes an event that shook Earth's atmosphere. Weirdest of all, it didn't even happen in our galaxy.

Gamma rays are the type of light so powerful and energetic that you need to have many centimetres of material to shield yourself from it. And that's what you get from nuclear reactions.

Many decades of concern (justified or not) about nuclear power have instilled in all of us the knowledge of the danger of radiation – yet the energy carried by the gamma photons in nuclear reactions truly pales in comparison to what you get from celestial events. Light thousands of times more powerful is emitted by the common bodies found peppered throughout the Universe. But as their properties become extreme, so do their gamma-ray emission, and eventually we find the most cataclysmic and energetic events.

GRB221009A – OR THE DAY EARTH'S ATMOSPHERE TOOK A BEATING

The highest gamma energy ever recorded in space is 2.5 million times the highest energy you get from nuclear decay. But this wasn't even the bulk energy of the event; it was in fact the energy of a single photon. The energy of a single photon is usually something that can only be compared to microscopic things. But not this gamma-ray photon. The easiest comparison is to consider a mosquito in flight, drifting through its day, not paying attention, and suddenly crashing into you. It might not be very noticeable, but you might sense it. Now, consider twenty careless mosquitos hitting you in the same place in one go. You'd probably feel that. It might be light but it's definitely something you can imagine having a physical impact. Well, that one gamma-ray photon had the same energy. I'm going to say it again: this is the energy of a single photon. A single particle of light. This is trillions of times more energetic than the visible light you are getting while reading this. It is an enormous amount.

LUCKILY, IT IS ESTIMATED
THAT EVENTS SUCH AS
THIS ONLY HAPPEN ONCE
EVERY 10,000 YEARS.

The event that sent this our way was a gamma-ray burst: a brief emission of gamma rays from an extreme event in the cosmos.

Gamma-ray bursts have been measured since the 1960s and this was by far the strongest. Those record-breaking photons pummelled the Earth's atmosphere for 800 seconds. I am using the word pummel in a very literal sense. The effect of this powerful light actually affected the ionosphere – the ionised portion of the atmosphere – in a similar way that a solar storm does. The atmosphere of our planet was changed by an event not just from beyond the solar system, but from a whole other galaxy, the dramatic effects of an incredible supernova going off about 2.4 billion light-years away. For many hours after the event, called GRB221009A, the Earth's ionosphere continued to be disturbed.

Take a minute to reflect on that statement. I regularly write about the bold and the powerful of the Universe and even I have to take a deep breath after reading about this particular event. Every image we get from space reminds us that we inhabit a wafer-thin portion of the planet we call home. A little volume of its thin atmosphere keeps us safe, warm and alive. And then you discover that events in another galaxy altogether can mess with your little protective bubble. Take a leaf out of the great philosopher Dolly Parton's book: don't let it drive you crazy. Luckily, it is estimated that events such as this only happen once every 10,000 years. And we can't be too scared of them. One way or another, we are all here thanks to the processes that created these brightest flashes. ✨



Q&A WITH

DR ALFREDO CARPINETI

AUTHOR OF:

*INVISIBLE RAINBOWS: THE HIDDEN
UNIVERSE BEYOND OUR SENSES*

Our world is a riot of color, but did you know that it is far richer than our bodies can perceive? As IFLScience Space Editor and astrophysicist Dr Alfredo Carpineti lifts the lid on the universe beyond our senses in his debut book, *Invisible Rainbows*, we wanted to know how you study something you can't see.

Why did you want to write this book?

I am really fascinated with what we cannot perceive. To think there's so much of the universe that exists beyond our sensorial experience is so exciting. Intellectually, it is also incredible what we have been able to achieve with the light that we cannot see. There are events in the universe we only discovered thanks to light beyond the visible, and that's extraordinary.

How small is our perception compared to what is out there?

We can perceive just a tiny fraction of the electromagnetic spectrum, and yet we have done so many incredible things with it. Not just scientific discoveries but also art. Colors that come from light, colors that are impossible in

nature, the absence of color altogether. We are very clever apes! And then we consider all the rest of the light, and it really puts into perspective that we are left dealing with such a limited range.

What can the world beyond our senses help us to better understand?

There are some main characters in the light beyond the visible, objects or events that show up in different ways across the broad class of wavelengths we use as categories. We see black holes in both X-rays and radio waves. Supernovae are tracked across the spectrum. And there are a bunch of very practical uses, too. As popularised by the book and the movie *Contact*, the search for aliens is mostly done in radio waves (but not exclusively). Protecting the Earth from dangerous asteroids by spotting them and studying them in detail is a mixture of visible, infrared, and even radio waves. Keeping an eye on the Sun and its activity is best done in ultraviolet light. These are just a few examples of the power of astronomy beyond the visible.

What kinds of technology enable us to study this "hidden universe"?

The discovery of the wavelengths beyond what we can see has never come from astronomy. It was always from something else. You get infrared from thermometers, ultraviolet from photochemistry, and so on. There were early attempts at using these emerging technologies with limited success. Astronomers were actually quite reluctant to adopt that tech. Many felt it was not really astronomy.

Karl Jansky recorded a space hiss in the early 1930s – which turned out to be the supermassive black hole at the center of the Milky Way – but it took decades more for radio astronomy to become established. Gamma-ray astronomy started with satellites set to check for enemy nuclear tests, discovering flashes in the cosmos.

Was there anything surprising or especially fascinating you uncovered during your research?

Pulsars were one of the early, revolutionary discoveries of radio astronomy. Dame Jocelyn Bell Burnell was responsible for catching these extremely dense, pulsating neutron stars, the end result of certain stellar explosions. That was in 1967; we are getting close to the 60th anniversary of that discovery. And the most amazing thing is that we do not know how pulsars actually produce radio waves!

What do you hope readers will take away from the book?

I always describe the book as a tasting menu. There are so many incredible discoveries and insights from astronomy beyond the visible, and I am certain that there is something for everyone in the book.

You'll also hear from a few dozen experts at the cutting edge of astronomy about their work, their discoveries, and what else we are yet to find out there in the universe! 🌟

*Invisible Rainbows is published
by Wilton Square Books
and is available now.*

Partial to a bit of time travel?
Well, do I have good news for you.
Journeying back 200 million years
into geological history is as simple
as taking a walk along the beach in
England. Here, the Jurassic Coast's
"sponge cake" geology has yielded
some of the most famous fossil sites
in the world, including the discovery
of a "one-in-a-billion" sea monster
skull in 2023.

By Rachael Funnell

WALKING THROUGH THE JURASSIC



World-famous fossils have fallen from the sky along England's Jurassic Coast. Just ask Phillip Jacobs, a fossil enthusiast who went walking along a stretch of shingle in Kimmeridge Bay, Dorset, only to find the snout of a **prehistoric sea monster** seemingly delivered from the heavens – a discovery that would have anyone shouting, "Oh my god!" But this wasn't a gift of divine intervention, oh no. This was the gift of erosion.

You see, the cliffs here are what fossil expert Chris Moore describes as a sponge cake that's been tilted and cut off. The exposed face is made up of layers representing periods in geological history, between which life is sandwiched like delicious fossil jam. The oldest layers can be found in the West and they get younger the further you head East.

"From West Dorset to East Dorset, you're walking through the whole Jurassic suite sequence of rocks," said fossil expert Steve Etches MBE to IFLScience. "You're going through 200 million years to basically 140 million years, and as you walk East, you're going through time. All the rocks are dipping this way and they're cut off, so you can see every Jurassic suite sequence of rocks."

It was towards the East that Jacobs stumbled upon the snout of a 150-million-year-old predatory marine reptile, a discovery that would trigger a retrieval mission of epic proportions as experts located the rest of the skull 12 meters (40 feet) up the cliff face.

Their efforts were rewarded with the "**one-in-a-billion**" skull of a pliosaur that broke the world record for being the most complete of its kind on the planet. But you don't need to climb a cliff to find fossils along the Jurassic Coast.

According to Moore, visitors can expect to pick up a fossil pretty much anywhere along the length of England's prehistoric coastline. Ammonites, belemnites, sharks' teeth, and ancient shells practically litter the shorelines of Charmouth and Lyme Regis.

Though Jacobs' discovery fell from the cliff, the best place to search for fossils is actually among the loose material on the beach that gets regularly churned up by stormy weather, revealing fresh snapshots into the past.

"Fossils along this coast have been collected for hundreds of years now, from the famous Mary Anning, who collected on the other side of Dorset, around 50 miles [80 kilometers] away," Moore told IFLScience. "[It used to be] a shallow warm sea [that was] very rich in life. [The area is] constantly eroded by the English Channel because it's in the southwest UK. We get big storms that wash away the soft clay and continually reveal new fossils."

As its name suggests, the 153-kilometer [95-mile] stretch of coast that spans Dorset to Devon is famous for its Jurassic-era fossils, but it also yields finds from the Triassic and Cretaceous. And to think, all you need to find them is a decent pair of walking boots. 🌟



LISTEN

WE HAVE QUESTIONS

Podcast from IFLScience

If I were to give you a little heart sticker (anatomically correct, of course) and asked you to place it where on your body you think the heart is, where are you placing it? To the right? To the left? In the center?

When anatomy expert Professor Adam Taylor began doing public engagement, it became clear that many of us actually aren't all that certain about what goes where in our bodies. In this discussion with senior science writer Rachael Funnell, he explains where the heart is and why, and how it becomes so complex despite starting out as a simple tube.

Available June 22.



LISTEN

THE BIG QUESTIONS

Podcast from IFLScience

As Ian Malcolm famously said, your scientists were so preoccupied with whether or not they could, they forgot to ask if they should. To avoid doing with aliens what InGen did with dinosaurs, space editor Dr Alfredo Carpineti steps up to ask SETI if chatting with aliens is even a good idea in the series return of *The Big Questions*.

Available June 11.



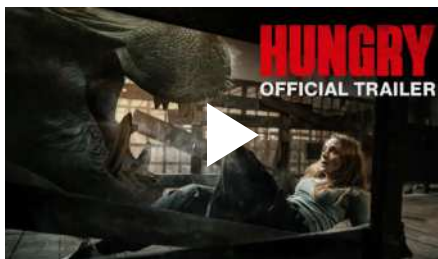
READ

NOT WITH A BANG

Book by Temi Oh

The Minton family grapple with unemployment, nightmares, conspiracy theories, and a devastating diagnosis. Then, an extinction-level event comes along to give them something to fight for.

Available now.



WATCH

HUNGRY

Movie from Signature Entertainment

With the surge of movies based on iconic games' IP, we're not sure this is what the makers of *Hungry Hungry Hippos* had in mind. Nonetheless, a very Hungry hippo is making its way to screens this June for the creature feature of the summer. Are hippos that deadly? **Yes, yes they are.**

Available on VOD June 23.

READ

THE SECRET HISTORY OF GOLD

Book by Dominic Frisby

Gold was forged in space long before our Solar System existed. The product of violent cosmic events, it sank into our planet's core, where it would become a pivotal resource for a species of bald, metal-obsessed apes. Find out how it's shaped our existence in this sweeping saga.

Available now.



LISTEN

BREAK IT DOWN

Podcast from IFLScience

Want an easy way to keep up with the latest science stories? Check out IFLScience's monthly podcast *Break It Down* – now available on **YouTube** – to hear our highlights.

Episodes released monthly.

PLAY

DON'T TOUCH THE SNAIL

Game by Both Good

In 2014, a thought experiment went viral. It pitched a perilous scenario: You receive \$10 million and become immortal, but so too does a super-intelligent snail. It will relentlessly pursue you forever, and if it touches you, you die. No wonder, then, that the subsequent game is titled *Don't Touch The Snail*.

Available now.

PRIDE MONTH - USA

1
DINOSAUR DAY

5
**WORLD
ENVIRONMENT DAY**

8
WORLD OCEANS DAY

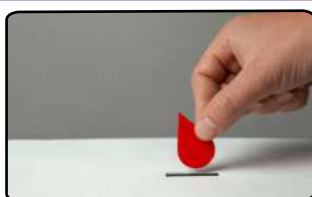


10
**ARIETIDS METEOR
SHOWER**

A rare daytime meteor shower peaks today; hard to catch but worth it for bragging rights.

2026 JUNE

This month, ironically, is bookended with Dinosaur Day and Asteroid Day, reminding us to appreciate both. We're also hitting the longest day in the Northern Hemisphere, Pride Month in the US, and *The Big Questions* Season 6 begins.



14
**WORLD BLOOD
DONOR DAY**

This event serves to raise awareness of the need for safe blood and blood products and to thank voluntary blood donors for their life-saving gifts of blood.

11 & 25
**NEW THE BIG
QUESTIONS PODCAST
EPISODES!**

Season 6 of *The Big Questions* is back on June 11, and we're diving straight in with not can we, but should we send messages to aliens? TBQs is fortnightly, so we're following up this month with could AI find a cure for cancer?



15
new moon

The best time of the month for stargazing!



21
SUMMER SOLSTICE

In the Northern Hemisphere, June 21 will mark midsummer: the "longest day" and "shortest night" of the year.



22
**NEW WE HAVE
QUESTIONS PODCAST
EPISODE!**

If we asked you where the human heart is located, we wonder how many of you will be surprised to find out you're kind of wrong. Have a listen and find out.



29
**"STRAWBERRY"
MOON**

30
ASTEROID DAY

ARE YOU DRAWN TO **THE DARKER** OR **LIGHTER** SIDE OF SCIENCE?

Choose how you end each issue. For those who prefer the darker side, Holly Large explores what happened when scientists gave fish a psychedelic. If you like your science lighter, discover how a plant used since ancient times could help to solve a very modern problem.



EXPLORE YOUR SIDE ON FACEBOOK

FISH ON SHROOMS

Much like a yappy Chihuahua when you dare to be within a few feet of its house, the mangrove rivulus fish is small and notoriously aggressive when another attempts to encroach upon its watery territory. But what if there was a... “magic” way to help it chill out?

Enter psilocybin, the key psychedelic ingredient in magic mushrooms. While scientists have a decent understanding of how this chemical affects behavior in humans and other mammals, its potential impact on other animals is less clear.

In other words, it’s an area that needs a lot more study – and as it happens, mangrove rivulus make for a great research animal. They’re easy to maintain, can survive in extreme conditions, have a short life cycle, and self-fertilize to produce genetically identical embryos – meaning that if you gave them, say, psilocybin, you’d know that any effects seen were down to the drug and not differences in their DNA.

So that’s exactly what a team of scientists from Canada did in a recent **study**. They first put two fish together so that they could observe and measure a baseline in their behavior. Then, a day later, one of the fish was put into a tank containing dissolved psilocybin for 20 minutes, before being scooped up and added to another tank containing the other fish from the day before.

The presence of psilocybin appeared to mellow them out, with exposed fish showing decreased activity levels and fewer swimming bursts, a characteristically aggressive, high-energy attack behavior. Lower-energy displays of aggression, however, remained relatively unchanged between exposed and unexposed fish.

“This suggests that this compound can selectively dampen escalated social conflict rather than shutting down behavior altogether,” said first author Dayna Forsyth in a **statement**.

“These findings provide the first evidence that psilocybin can selectively reduce escalated aggression in a vertebrate model without suppressing social interaction,” added senior author Dr. Suzie Currie, although the authors note that these effects were only seen in the short-term – more research is needed to determine if psilocybin makes the fish stay chilled out in the long run.

And though the team also cautions that the findings can’t be directly translated into humans, this kind of study has some potential to inform research into psilocybin as a therapeutic.

“Future studies can build on this work to explore how psilocybin alters neural signaling, which serotonin pathways are involved, and why some aspects of social behavior are affected while others are not,” said Currie. “These are questions that are difficult or impossible to answer directly in humans.”

PLANTS AGAINST MICROPLASTICS

Microplastics are everywhere, from **tap water** and the breath of **wild dolphins**, to your Saturday night **steak** and the **human penis**. While scientists are still scrambling to understand the impact of microplastics in these places, one thing is clear – it’s probably a good idea to find a way to remove them, and a new **study** has leaned on an old, but effective method to do so.

It involves the seeds of the moringa tree (*Moringa oleifera*), which were **reportedly** used by ancient Egyptians to clarify drinking water. This isn’t an unfounded approach; previous research has established that a protein within the seeds can cause bacteria in water to clump together (known as coagulation) and fall to the bottom of a container, making them easy to remove.

The new study has discovered that something similar happens with microplastics and a salt-based extract from the moringa seeds. Typically, microplastics have a negative charge that causes them to repel each other; the seed extract neutralizes this charge, allowing the tiny plastic particles to clump up, after which they can be filtered out using sand.

The researchers compared how effectively the seed extract did this with aluminum sulfate, a chemical that’s already used for water purification, but may also present issues.

“There’s increasing regulatory scrutiny and health concerns regarding the use of aluminum- and iron-based coagulants, as they aren’t biodegradable, leave residual toxicity, and pose a risk of disease. For that reason, the search for sustainable alternatives has intensified,” said study author Adriano Gonçalves dos Reis in a **statement**.

Reis and colleagues found that under optimal conditions, the method using the seed extract was just as effective as that using aluminum sulfate, both removing over 98 percent of tiny particles of polyvinyl chloride, one of the most widespread microplastics in the environment.

“In more alkaline waters, it performed even better than the chemical product,” added first author Gabrielle Batista.

Further research is needed to determine if the method is still feasible once scaled up beyond lab proportions, but the findings suggest that the use of moringa may well be a suitable alternative to costly and potentially unsafe chemicals already in use.

One advantage in particular is that moringa can and already is grown in a number of tropical and subtropical areas, making it a method that would be simple to adopt in these places – especially for those not running on an industrial level.

“On a small scale, such as on rural properties and in small communities, the method could be used cost-effectively and efficiently,” said Reis.



The **Darker** Side of Science



THE **Lighter** Side OF SCIENCE