The Next Truth

Young People Science©

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In This Edition

The Next Truth

The Next Truth is an energetic magazine covering both systems of acquiring knowledge that use observation, experimentation, and replication to describe and explain natural phenomena known as Science and Noetic Sciences, a multidisciplinary field that brings objective scientific tools and techniques together with subjective inner knowing. In other words … "Where Science and Myth Meet".

Our contributors are, without a doubt, tickling your indomitable curiosity and provide scientific explanations concerning topics viewed, and thought of, by the majority as myths.

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E-Mail: **info@nexttruth.com**

Graphic credits: Maria Anna van Driel

STE(A)M; A New Wave in a Vast Ocean of Possibilities.

By Maria Anna van Driel, www.nexttruth.com

Don't wait until they tell you you are ready, get in there! If you, as a freshman, want to write, direct and star in your own vibrating career, the lights are already aimed at you.

That particular moment in where you know you have to deal with *you're not allowed to do that* you know you have presented yourself in an incredible way and it's only a 'tough thing' to convince people that there is something more or that they might want to see something different.

I have always believed that it is not about convincing others of you fitting the profile of their thinking but, that it is about an illuminated spark. It is about who you are as a person. It is about your soul reaching out to your true purpose in live.

What is the struggle worth? The 'safe road' is going pay off way better!

Well, there are many payoffs to it but can you travel that familiar road and have your soul be on a completely different track…away from whatever it is that is truly firing up your passion and curiosity? It is always worth asking questions, explore new territory and, take a risk every now and then by, for instance, bringing new thoughts into your essay. And if this exploring side of you is not excepted by the, so called, popular kids in school, so what. You are expanding your mind, yourself!

You are the vanguard of knowledge and consciousness…a new wave in a vast ocean of possibilities.

On the other side of those school doors there is a world starving for new ideas and new leadership. And even though fear might be a player in your life sometimes, deciding how you can spend your whole life imagining ghosts and worrying about the pathway to the future, all there will ever be is what is happening here and the decisions you make in this moment for you to walk up to tomorrow. Decisions which are based on either love or fear.

As a teenager I had so many dreams of where I wanted to go, who I wanted to be and what I wanted to do. I wanted to be a brilliant engineer and build space ships, write scripts for Science Fiction movies and earn billions and billions of Euro's. It might take a little time I thought but it will happen. What I didn't want to think about was *what do I have to start tomorrow*. Then, 30 years later, completely un expected, I was thrown into this expansive, incredible feeling of freedom. A freedom from myself - my problems - I saw that I was bigger then what my 18 year old version wanted to do. I was bigger than my body – I was everything and everyone. ›››

Image provided by: Theoretical physicist and expert on Albert Einstein's theories, Prof. Emeritus Ronald Lawrence Mallett, who is best known for his research on gravitational frame dragging by light (aka Time travel by laser light).

I was no longer a fragment of the universe, I was the universe. And in that moment I realized that the purpose of my life was never about me walking the illuminated places the stage of life is presenting so sparkly.

My true purpose in life had always been to free people from concern, to make them familiar again with their own define rhythm, for them to present their amazing work while walking the stage of life.

Realizing that my Ego was trying to keep me trapped in the multiplex of the mind, in this allay of 'materialistic thinking' eventually resulted in the expanding my thoughts. Today, 30 years later, this has reached a myriad people and created an incredible effect in them feeling comfortable…a view that is making me smile time and time again.

Too many people choose a path/career out of fear for what they really want, what seems impossibly out of reach or is too ridiculous to expect. So they never dare to take that step towards their true purpose in life, never dare to ask the universe for it.

I am saying, you can fail at what you don't want so, you might as well take a chance on doing what you love.

So, as soon as you start your favorite STE(A)M subject, your very first day at collage remember that your soul is not contained within the limits of your body, your body is contained within the limitlessness of your soul. And even if it might sound crazy to you at this moment, don't search for defining moments because they will never come. These moments that define you have already happened and they will happen again.

And if you get a bit derailed along the way, that is alright…soon something starts to happen. A rhythm sets in just like it did after your first few days on the university. Just try not to wait, like me, until you are 48 before you find it, continue the one you have already found.

The world is yours!

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TEDTALKS
IDEASWORTH SPREADING

DiD YOU KNOW?

For more odd Physics words visit the website of ***Symmetry***

Physics can often seem inconceivable. It's a field of strange concepts and special terms. Language often fails to capture what's really going on within the math and theories. And to make things even more complicated, physics has repurposed a number of familiar English words.

Doping

Most people associate doping with drug use and sports. But doping can be so much more! It's a process to introduce additional materials (often considered impurities) into a metal to change its conducting properties. Doped superconductors can be far more efficient than their pure counterparts. Some accelerator cavities made of niobium are doped with atoms of nitrogen. This is being investigated for use in designing superconducting magnets as well.

Decay

Most people associate decay with things that are rotting. But a particle decay is the process through which one particle changes into other particles. Most particles in the Standard Model are unstable, which means that they decay almost immediately after coming into being. When a particle decays, its energy is divided into less massive particles, which may then decay as well.

Barn

A barn is a unit of measurement used in nuclear and particle physics that indicates the target area ("cross section") a particle represents. The meaning of the science term was originally classified, owing to the secretive nature of efforts to better understand the atomic nucleus in the 1940s.

Now you can know: One barn is equal to 10^{-24} cm^2. In the subatomic world, a particle with that size is quite large—and hitting it with another particle is practically like hitting the broad side of a barn.

Contributors

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Kathryn is an author and former Peace Corps volunteer. Beside writing books and articles about science for kids and teens, Kathryn has also published educational books with National Geographic Kids, ABDO, Cavendish Square, Mason Crest, ReferencePoint Press, Rourke, and others. In 2011 and 2012, she co-directed the New England SCBWI conference. Kathryn taught workshops on interviewing techniques and the nonfiction write-for-hire market. Her book (published in Oct. 2019) *Strange But True: 10 of the World's Greatest Mysteries Explained* explores the science and history of paranormal mysteries. **www.kathrynhulick.com**

Anindita Bhadra (Kolkata, India)

Anindita Bhadra, a behavioural biologist, working with free-ranging (stray) dogs in India, is an Ass. Prof. in the Dep. of Biological Science, IISER, Kolkata, the founding chair of INYAS, attended YIM 2015 as a YI and is a Global Young Academy Co-Chair. Her PhD she did with Prof. Raghavendra Gadagkar at the Centre for Ecological Sciences, Indian Institute of Science, Bangalore. With his encouragement, Anindita applied for a faculty position at IISER Kolkata to write and focus her research proposal on the various questions in behavioural biology and ecology of free-ranging dogs in India to understand the evolution of the dog-human relationship. **www.www.iiserkol.ac.in**

Jonas Grinevičius (BoredPanda Staff)

Jonas is a Bored Panda writer who previously worked as a world news journalist elsewhere. After getting his bachelor's degree in Politics and International Relations at the University of Manchester, he returned home and graduated from Vilnius University with a master's degree in Comparative Politics. Jonas enjoys writing articles ranging from serious topics like politics and social issues to more lighthearted things like art, pop culture, and nature. In his spare time, Jonas writes books and short stories and likes to draw lighthearted illustrations. **www.boredpanda.com**

Austėja Akavickaitė (Bored Panda Staff)

Austėja is a Photo Editor at Bored Panda with a BA in Photography. Over many years she has developed a diverse set of creative skills and a wide portfolio which ranges from photography to digital editing and traditional/digital art. She solidified that knowledge after graduating from Nottingham Trent University in 2018 and has worked as a freelance photographer until Bored Panda. When not editing, she enjoys walks, drinking a bit too much coffee daily and drawing. **www.boredpanda.com**

William John Murray (UK)

Physics prof. and Ph.D. W. J. Murray is an Edinburgh-born researcher. His involvement at CERN includes understanding the interactions and properties of the Higgs boson using the ATLAS detector at the LHC (CERN). He is searching for new physics, especially dark matter. Prof. Murray was the ATLAS Higgs convener from 2009 until 2011, physics coordinator from 2012 -2014, and was right in the center of the Higgs discovery in July 2012. Prof. Murray was a researcher at the Rutherford Lab, in Oxfordshire and in 2013 became a professor at Warwick University. **http://delphiwww.cern.ch/**

Jurgita Dominauskaitė (BoredPanda Staff)

Jurgita is a content creator at Bored Panda. She studied Lithuanian Philology and Italian Language, but it was not enough to feed her hunger for knowledge so she also got a Master's degree in Translation. She is a positive and hard-working panda. In her spare time this panda likes to read, learn new languages and go for long walks. Her favorite writer is Umberto Eco and she will trade bamboo for strawberries. **www.boredpanda.com**

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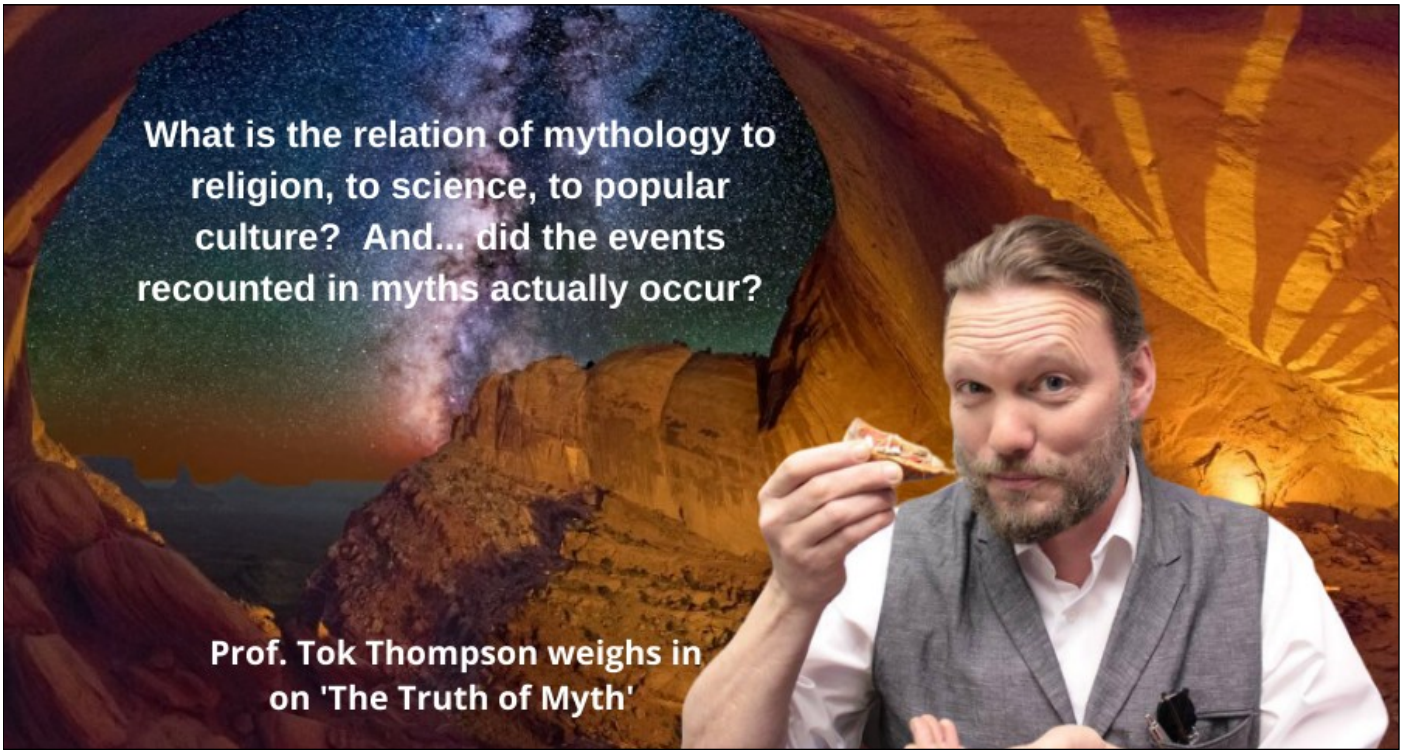
Denise D. Cummins (Boulder, Colorado, US)

Dr. Denise D. Cummins. PhD, is cognitive scientist, author, and elected Fellow of the Association for Psychological Science. She has held faculty and research positions at Yale University, the University of California, the Uni-versity of Illinois, and the Center for Adaptive Behavior at the Max Planck Institute in Berlin. In her *Psychology Today blog*, *Scientific American*, *NPR*, and *PBS NewHour* articles, she writes about what she and other cognitive scientists are discovering about the way people think, solve problems, and make decisions. Dr. Cummins also blogs about equestrian sports as The Thinking Equestrian. **www.denisecummins.com**

Accepted science

Noetic science



Click, or tap, the image above and listen to Prof. Thompson's interview via the You Tube chanel of The Next Truth. For his book "Posthuman Folklore" **click here** or, click the book cover.

'Mythos' is the Greek word for *story-of-the-people*, and 'logos' stands for word or speech. Myth, or Mythology, is the spoken story of a people and has played an integral part in every civilization throughout the world.

Pre-historic cave paintings, etchings in stone, tombs, and monuments all suggest that, long before human beings set down their myths in words, they had already developed a belief structure corresponding to the definition of `myth'.

Studying mythology is the interpretation of traditional and sacred tales of a culture known as myths or the collection of such stories which deal with various aspects of the human condition. For instance good and evil, the origin of place-names, animals, cultural values, and traditions. But also, the meaning of life and death, the afterlife and the gods or a god.

Myths… they express the beliefs and values about these subjects held by a certain culture. So, what one calls "mythology" in the present day, was the religion of the ancient past. But what it the truth behind these ancient stories?

Anthropologist Tok Thompson, who is an associate professor at the University of Southern California, was a guest in the radio program of The Next Truth. Him being in rural Alaska at the moment of his interview made a bit difficult to connect online. But, the creative mind of Prof. Thompson created a perfect solution! He recorded his answers to the questions from his office in Alaska what made it possible for The Next Truth to speak with him about what the relation of mythology is to religion, to science and to popular culture and, did they really happen?

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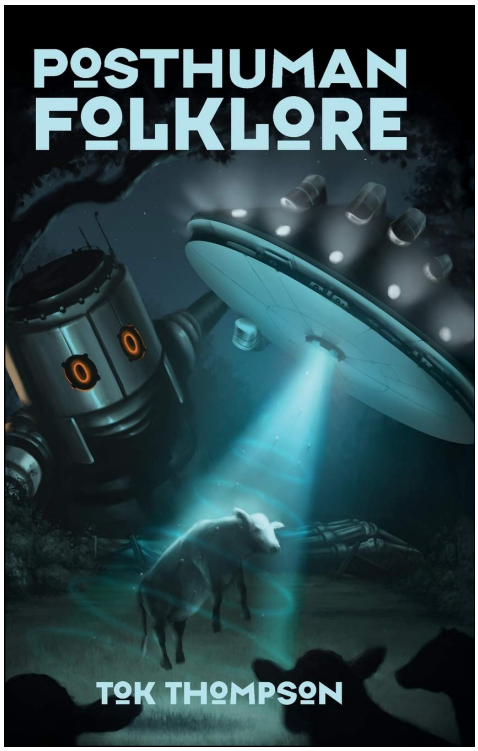
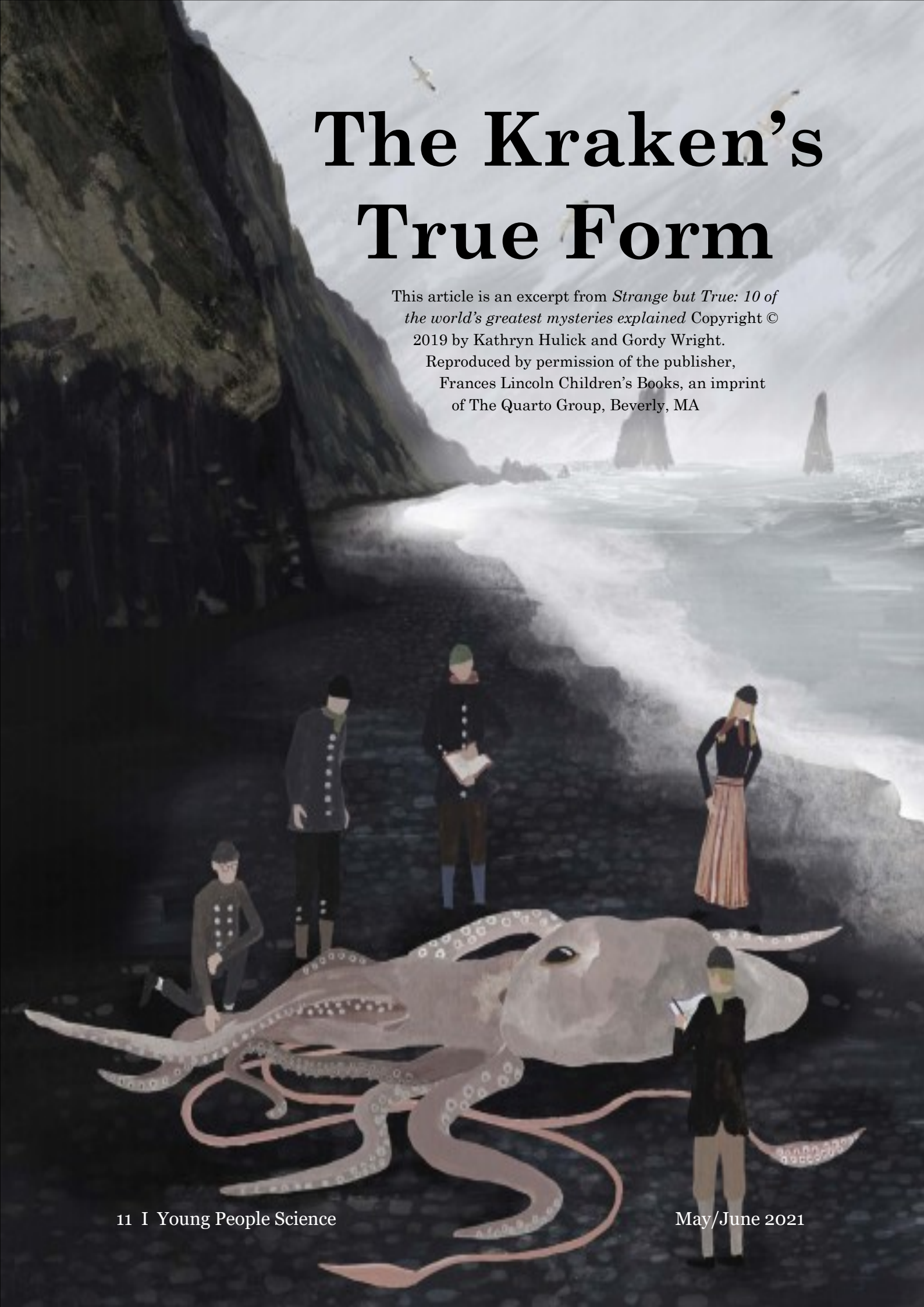
To become more familiar with Prof. Thompson's work visit the website of USC.



The Kraken's True Form



The Kraken's True Form

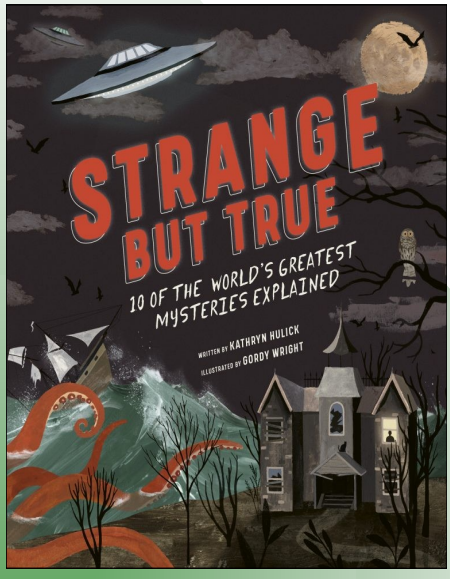
By Kathryn Hulick, www.kathrynhulick.com

The submersible dives down, deeper and deeper. The color of the surrounding water fades from blue green to rich blue and finally to gray-black. Suddenly, out of the blackness, a jellyfish covered with dancing lights appears.

It's a lovely sight. But the people inside the bright yellow Triton submersible are not looking for small creatures, no matter how flashy. They have come to the Ogasawara islands of Japan on this summer day in 2012 to search for a massive beast.

Its eyes are each the same size as a human head. It grabs prey using eight long arms and two even longer feeding tentacles. With these tentacles stretched out, it can reach the height of a four-story building. On each of its arms and tentacles, hundreds of suction cups with sharp, serrated edges cut into whatever it grabs. It devours each meal with a sharp beak and toothed tongue.

Inside its body, three hearts beat, pushing blue blood through the creature's veins. And its skin changes color, shimmering through hues of metallic silver and bronze. Should any other creature try to attack it, the beast sprays out a cloud of jet-black ink. This cloaks its escape. On this dive, the group fails to find what they're looking for. But they will keep trying. What is this monster they seek? Could it possibly be real?



Click, or tap, the book cover and purchase it via Amazon.

In the book *Strange but True: 10 of the world's greatest mysteries explained* you explore 10 of the world's greatest unsolved mysteries, you'll witness a UFO encounter, search for the lost city of Atlantis, tour a haunted house, and discover the kraken's true form.

Mythical Monsters

Sea monsters have swum through myth and folklore as far back as the 13th century, when *The Saga of Arrow-Odd*, an Icelandic romance, mentioned a beast called Hafgufa that swallowed men and ships. In 1555, Olaus Magnus, an archibishop in Sweden, described and illustrated several sea monsters, writing that one of these beasts could drown many great ships. In 1755, bishop Erik Pontoppidan described the kraken, a beast so large it resembles a string of small islands. He wrote it was "round, flat, and full of arms, or branches." When a kraken rises to the surface, he writes, smart fishermen "take to their oars and get away as fast as they can."

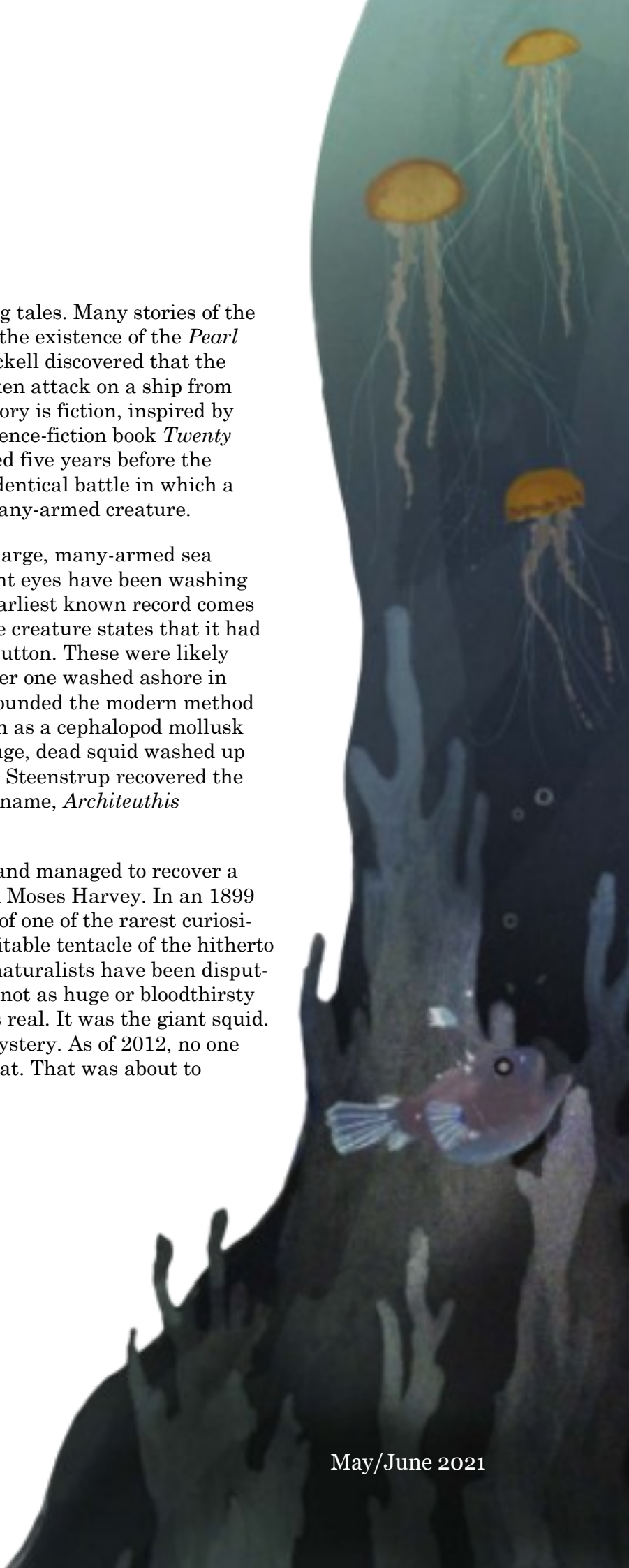
In 1874, the *London Times* published an account of a huge, squid-like beast attacking a ship called the *Pearl* in the Indian Ocean. According to this story, a passing vessel rescued the captain, James Floyd, and several crew members. Floyd reported that "Monstrous arms like trees seized the vessel and she keeled over; in another second the monster was aboard..." Next, the crew apparently fought the beast with axes, but in the end, it pulled the ship under water. ›››

The Real Kraken

Sailors and fishermen are famous for telling tales. Many stories of the kraken veer far from reality. For example, the existence of the *Pearl* and its captain has never been verified. Nickell discovered that the *London Times* reprinted the story of a kraken attack on a ship from a British paper in India. Most likely, the story is fiction, inspired by author Jules Verne. His hugely popular science-fiction book *Twenty Thousand Leagues Under the Sea*, published five years before the London Times story, described an almost identical battle in which a ship's crew wielded axes against a huge, many-armed creature.

However, it's also true that dead bodies of large, many-armed sea creatures with toothy suction cups and giant eyes have been washing up on beaches for hundreds of years. The earliest known record comes from Iceland in 1639. The description of the creature states that it had seven tails densely covered with a type of button. These were likely tentacles with suction cups. In 1673, another one washed ashore in Ireland. Carl Linnaeus, the scientist who founded the modern method of classifying animals, described the kraken as a cephalopod mollusk in 1735. And in 1853, after the body of a huge, dead squid washed up on a beach in Denmark, naturalist Japetus Steenstrup recovered the beak, and used it to give the species a new name, *Architeuthis monachus*, the giant squid.

A few years later, fishermen in Newfoundland managed to recover a tentacle and gave it to naturalist Reverand Moses Harvey. In an 1899 article, he wrote, "I was now the possessor of one of the rarest curiosities in the whole animal kingdom—the veritable tentacle of the hitherto mythical devilfish, about whose existence naturalists have been disputing for centuries." Clearly, the kraken was not as huge or bloodthirsty as the legends made it out to be. But it was real. It was the giant squid. Still, the creature remained shrouded in mystery. As of 2012, no one had ever seen one alive in its natural habitat. That was about to change. ›››



An Alien Encounter

The Triton descends once more. This time, marine biologist Tsunemi Kubodera of the National Museum of Nature and Science in Tokyo is on board. Dim red lights peer into the surrounding water. Most deep ocean animals can't see the deepest shades of red. But they can see the bait, a three- foot-long squid tied to a string that trails from the sub. It sports a flashing light lure.

Two hours pass. Then, out of the blackness, something appears. It reaches for the bait with long, suction-cupped arms. "It's a giant squid! We've done it!" An excited Kubodera says in Japanese. He takes a chance and turns on the sub's bright white lights, but the creature does not swim away. It feeds for 23 minutes as Kubodera and his colleagues watch, in awe. They are the first humans to come eye to eye with a giant squid in the deep sea. When it finally leaves, Kubodera leans back, staring upwards. All he can say is, "Oh!"

There's no doubt about it. The giant squid is a real sea monster. And even more amazing, unknown creatures likely remain hidden in Earth's oceans. We have better maps of the surface of Mars and Venus than of the ocean floor. What could be down there? No one knows. Edith Widder, a marine biologist who took part in the expedition that filmed the giant squid, says that she welcomes any opportunity to explore the world's lakes and oceans. Exploring "opens up possibilities of seeing things we couldn't have imagined are there."

Every day, scientists explore the world, seeking the answers to unsolved mysteries. It took centuries of scientific research and experimentation to finally reveal the giant squid hiding behind the mystery of the kraken. What other mysteries remain to be discovered and solved? The only way to find out is to get out there and look.

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Click, or tap, the Kraken attacking the ship and find out,via this You Tube video which terrifying sea monsters are still alive today.

Click, or tap, the huge squid, aka The Kraken, and watch the You Tube video of Dr. Emily Zarka *"Release the Kraken! Origins of the Legendary Sea Monster".*

Death Finds a Way or Mud
Chapter 5 "The Rubicón"

By Prof. William John Murray, www.warwick.ac.uk

An hour later, at 11, Elly walked out into the sun. Her return flight was the Thursday, the next day, and the police had offered to take her to her hotel, but Elly had no reason to go there, and the mortuary was closer to the centre of town.

Her feet lead her round the old part of town, following, for reasons she could not have explained, the route around Santander Lola had outlined. Her phone soon brought her to the square with the Ventilador in one corner. At midday it seemed the most innocent of places.

A pair of businessmen were having a coffee, but most of the table were deserted. She talked to the waitress, but she had not been there on the Monday night, and nor had the bartender.

She moved on, trying to find the restaurant. A couple of blocks, a corner, and a main street was all the directions she had to go on, and it took her nearly an hour before she was at the Sandoñana, but looking inside it was clearly the right place. It was also firmly closed at this time of day, so she went back to a cafe she had rejected, and bought herself a hamburger.

She sat slowly munching on it and feeling as if she was getting nowhere. Afterwards she walked across town to the Rubićon, where she pushed through the door, and had a little more luck. "Hello, I wonder if you can help me" The bartender had excellent English: "Of course; are you wanting a drink or something to eat?" "Oh, neither. I am trying to trace my father". She wasn't sure she meant to say that, but it was out. "Ah, are you the daughter of the man who was found in the harbour yesterday? The police were asking about him. It is sad, very sad. Yes, yes, he was in the bar here. " "So what happened? I just want to know."

"Well, he came in about eleven and he had a drink with a girl. I am not sure you want to hear this señorita." "go on". "Well the girl, she was Chinese I think, she must have been about your age. She was dressed... all very sexy. They were drinking vodka and orange. I think they had two. And I noticed they were dancing...well, people are free to do what they like. But most of the people here in the evening are young and your father and this girl made an usual couple - its a big age gap. But they didn't leave together. I remember, the man bought a single drink about 1 am." "Why, what happened.?" "How would I know? I just serve drinks. I think I told you all I know." "Thank you, its very helpful. Oh one other thing, did you say there were two Chinese women, or one?" "Just one, as I told you."

Elly wasn't sure what else to say, so thanked him again and walked back out into the street. The sun was shining brightly, making her blink. Was it possible the barman had forgotten Shi? Or was Lola trying to hide something? She remembered the taxi in Boston. Why had they gone to Shi's hotel first?

She felt uncomfortable, remembering that her father sat in the centre, with her on one side and Lola on the other. Who's idea was that really?

She turned a corner and walked down a road, which descended steeply at first towards the harbour. The dock where Dad had been found was just a short walk away, and he must have traced these steps, before... whatever happened, happened. But she felt no closer to understanding. This was the night before his triumph. Surely he didn't take his own life? Or had he ...done something... to Lola and couldn't face himself? Could she have lied to spare him embarrassment? Why had they split up? They were staying in the same hotel. There must have been some sort of disagreement., mustn't there?

She found herself overlooking the harbour at half -past two. The Centro Botin hovered over the water, its underside dappled with dancing light. The space-craft like building had only been finished a couple of months, and gleamed on its stilt-like legs. This was where the body had been found, in the water just below. ›››

It was so calm now, so beautiful, it was hard for her to visualize any of the possibilities: a drunken slip, a suicide, a murder.

She watched the ripples in the harbour lapping at the wall, but inspiration elluded her.

At last she came to some sort of a conclusion: if the dead would not talk to her, she should try the living. She decided to visit the biochemistry conference.

■■■

To be continued in the next edition with chapter 6, "Javier"

DID YOU KNOW?

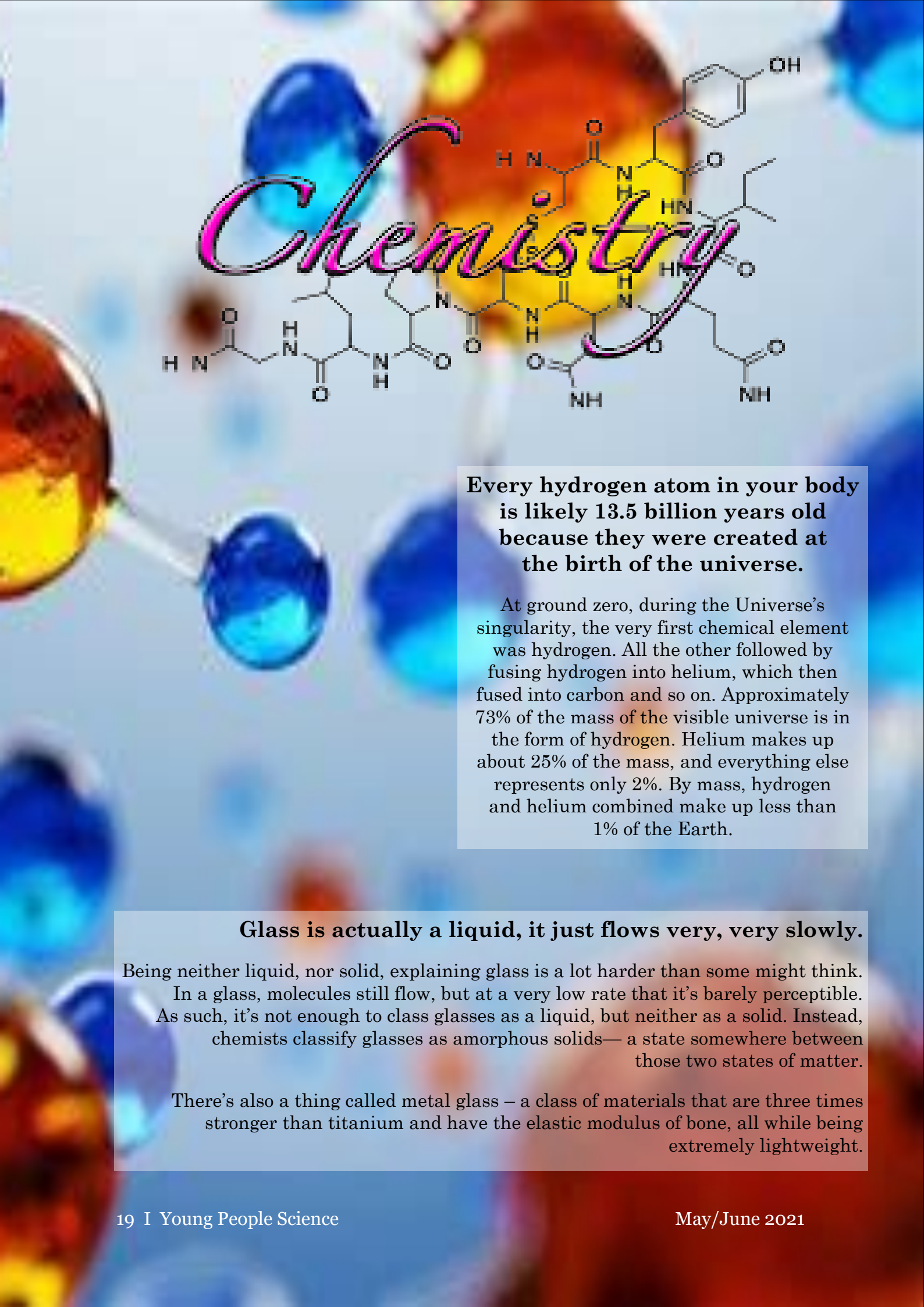
A rubber tire is technically one single, giant, polymerized molecule.

Some molecules can be very big, but most are still microscopic. Not the vulcanized tire, though — it's all one, big, freakin' molecule! Basically, the vulcanized tire is all made of large polymers chains that have been crosslinked together with covalent bonds.

The world's first known chemist was a woman. A cuneiform tablet from the second millennium B.C. reveals that a perfumer and palace head by the name of Tapputi infused the essences of flowers and other aromatic sources. Then she added water and then sent them back to the still (a distilling apparatus) several times until she arrived at her desired resulting concoction. Her procedure is also one of the first and earliest recorded incidences of distillation.

Lightning strikes produce Ozone, hence the characteristic smell after lightning storms.

Ozone, the triple oxygen molecule that acts as a protective stratospheric blanket against ultraviolet rays, is created in nature by lightning. When it strikes, the lightning cracks oxygen molecules in the atmosphere into radicals which reform into ozone. The smell of ozone is very sharp, often described as similar to that of chlorine. This is why you get that "clean" smell sensation after a thunderstorm.



Every hydrogen atom in your body is likely 13.5 billion years old because they were created at the birth of the universe.

At ground zero, during the Universe's singularity, the very first chemical element was hydrogen. All the other followed by fusing hydrogen into helium, which then fused into carbon and so on. Approximately 73% of the mass of the visible universe is in the form of hydrogen. Helium makes up about 25% of the mass, and everything else represents only 2%. By mass, hydrogen and helium combined make up less than 1% of the Earth.

Glass is actually a liquid, it just flows very, very slowly.

Being neither liquid, nor solid, explaining glass is a lot harder than some might think. In a glass, molecules still flow, but at a very low rate that it's barely perceptible. As such, it's not enough to class glasses as a liquid, but neither as a solid. Instead, chemists classify glasses as amorphous solids— a state somewhere between those two states of matter.

There's also a thing called metal glass – a class of materials that are three times stronger than titanium and have the elastic modulus of bone, all while being extremely lightweight.

WORM

Click, or tap the image of this little snake-like creature and read all about him/her via Wikipedia

Worms are many different distantly related animals that typically have a long cylindrical tube-like body, no limbs, and no eyes.

When an animal or human is said to "have worms", it means that it is **INFESTED WITH PARASITIC WORMS**, typically roundworms or tapeworms.

Worms **BREATHE THROUGH THEIR SKIN** and so it must be kept moist all the time to enable them to absorb the oxygen from the air.

Free-living worm species do **NOT LIVE ON LAND**, but instead, live in marine or freshwater environments, or underground by burrowing.

In one acre of land, there can be **MORE THAN A MILLION** earthworms.

Killer Whale

Click, or tap the image of the killer whale or orca (Orcinus orca) and read all about how they are related to the oceanic dolphin family via Wikipedia

A TOOTHED WHALE belonging to the oceanic dolphin family, of which it is the largest member.

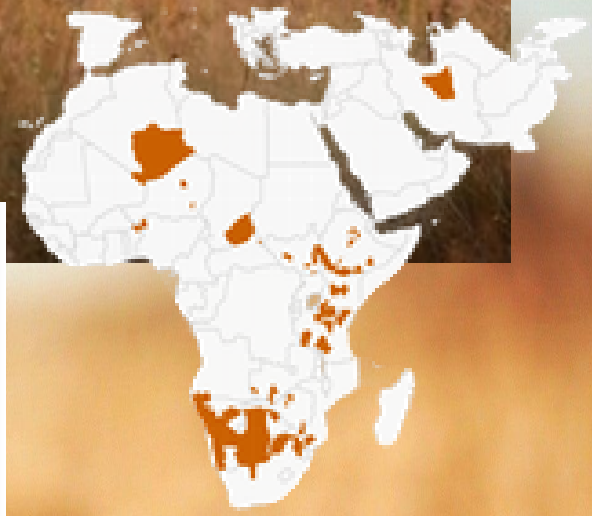
A TYPICAL KILLER WHALE distinctively bears a black back, white chest and sides, and a white patch above and behind the eye.

They are apex predators, which means they **HAVE NO NATURAL PREDATORS** themselves.

They are sometimes called the wolves of the sea, because they **HUNT IN GROUPS** like wolf packs.

They have the **SECOND-HEAVIEST BRAINS** among marine mammals, after sperm whales.

Cheetah



HEIGHT	DIET	BODY LENGTH
67-94 CM	CARNIVORE	110-150 CM
26.4-37 IN	ungulates	43.3-59.1 IN

A SPOTTED CAT with a small and rounded head, short snout, deep chest, long tail, and long and thin legs.

GUINNESS RECORDS

2012: Sarah, an 11-year-old cheetah achieved **A FASTEST 100-M RUN** from a standing start in 5.95 seconds in Clermont County, Ohio, USA.

Each of them has **A DISTINCT PATTERN OF SPOTS** which can be used to identify unique individuals.

They are unable to roar due to the presence of **A SHARP-EDGED VOCAL FOLD** within the larynx.

The pronounced **TEAR STREAKS** (or malar stripes), unique to them, originate from the corners of the eyes and run down the nose to the mouth.

CULTURAL SIGNIFICANCE

IN BACCHUS AND ARIADNE, an oil painting by the 16th-century Italian painter Titian, the chariot of the Greek god Dionysus (Bacchus) is depicted as being drawn by two cheetahs.

Click, or tap the image of this big cat and read all about the fastest land animal via Wikipedia

Guanaco

South American member of the
CAMEL FAMILY,
closely related to the alpaca, llama, and vicuña.

Their wool is particularly prized for its soft, warm feel, and it's found in
LUXURY FABRIC.
The guanaco's wool is valued second only to that of the vicuña.

When threatened, they alert the rest of the herd with a
HIGH-PITCHED BLEATING SOUND,
which sounds similar to a short, sharp laugh.

Click, or tap the image of the Guanaco (Lama guanicoe) and read all about them via Wikipedia

To survive in low oxygen at 13,000 ft (4,000 m) above sea level, guanaco's blood has
FOUR TIMES THE NUMBER OF RED BLOOD CELLS
as that of humans.

EVOLUTION HISTORY

Camelidae family migrated to South America via the Panama land connection, and evolved into vicuñas and guanacos (their fossils exist from two million years ago).

Just for fun!

By Assistant Prof. Anindita Bhadra, www.iiserkol.ac.in

Doing embroidery, I just realized, is a lot like playing computer games. I mean those where you pop bubbles or candies or bricks or whatever by matching colours and patterns and putting three or more in a row.

There's something very addictive and soothing about those games – they help you clear your mind by simply making you stop thinking, for a while. Also, there's this feeling of exhilaration when things go popping and splashing colours on your screen, just because you hit a good combination that has triggered off a chain reaction. You can sit back and enjoy the action, doing nothing, just taking in the cornucopia of colours.

I think that's what I like about those games – when I have just too much to do and sit in front of my computer, trying to organize myself and prioritizing, trying to get out of the mess by doing a bit of everything at the same time and getting into a bigger mess, or simply feeling so drained that I don't have the energy to do anything constructive, I indulge myself at times, playing one of these silly games, albeit, without the sound effects.

What is it about bubbles bursting, crackers popping, balloons exploding, that is so attractive? Does this attraction for loud sounds and colours that are transient and that arouse the sleeping child in us get bigger and monstrous in those who like to play with weapons? At times I wonder…

But I was talking about embroidery – that art that is dying in modern times because little girls are no longer taught to sew in their schools.

I went to an all-girls school, and we had needlework for three years, classes three to five (no reason why boys shouldn't learn to sew too, but that's a different discussion). I didn't enjoy it then, at all, doing all the boring lines of different stitches, but I did learn something. I also had good teachers at home, my mother, her sister, my Didun (paternal grandmother), each had their forte.

Dr. Anindita Bhadra is a Global Young Academy Co-Chair and Associate Professor at the Indian Institute of Science Education & Research Kolkata.

I have seen my Maashi (aunt) embroider dresses and sarees for one and all, including me. My Maa had stopped doing these things, but I have seen elaborate table cloths, pillow covers made by her. My Didun used to make little dresses for me at home and she was an avid knitter, knitting through the day, in all seasons.

As a kid, I had a woollen wardrobe that would be envy for most fashion models. I dabbled in knitting and crochet as a child but didn't do much. I suddenly started embroidery and stitching a few years ago, when I was expecting my daughter. I began by making a coverlet for her, graduated to making tiny dresses and somehow got hooked, going back to my needlework kit every now and then. ›››

When you are playing one of those popping games, you are clearing levels and each level makes you want to play a little more. This urge to play on increases if you happen to get stuck at a level, and you keep playing until you exhaust all your virtual lives. It's exactly like that when you are doing embroidery. You tell yourself, okay, just a little, and then I will go to bed. But then, when you have exhausted the thread you were using, the part of the design you were working on is three-fourth complete, and you simply can't stop there. So, you thread your needle again and get going.

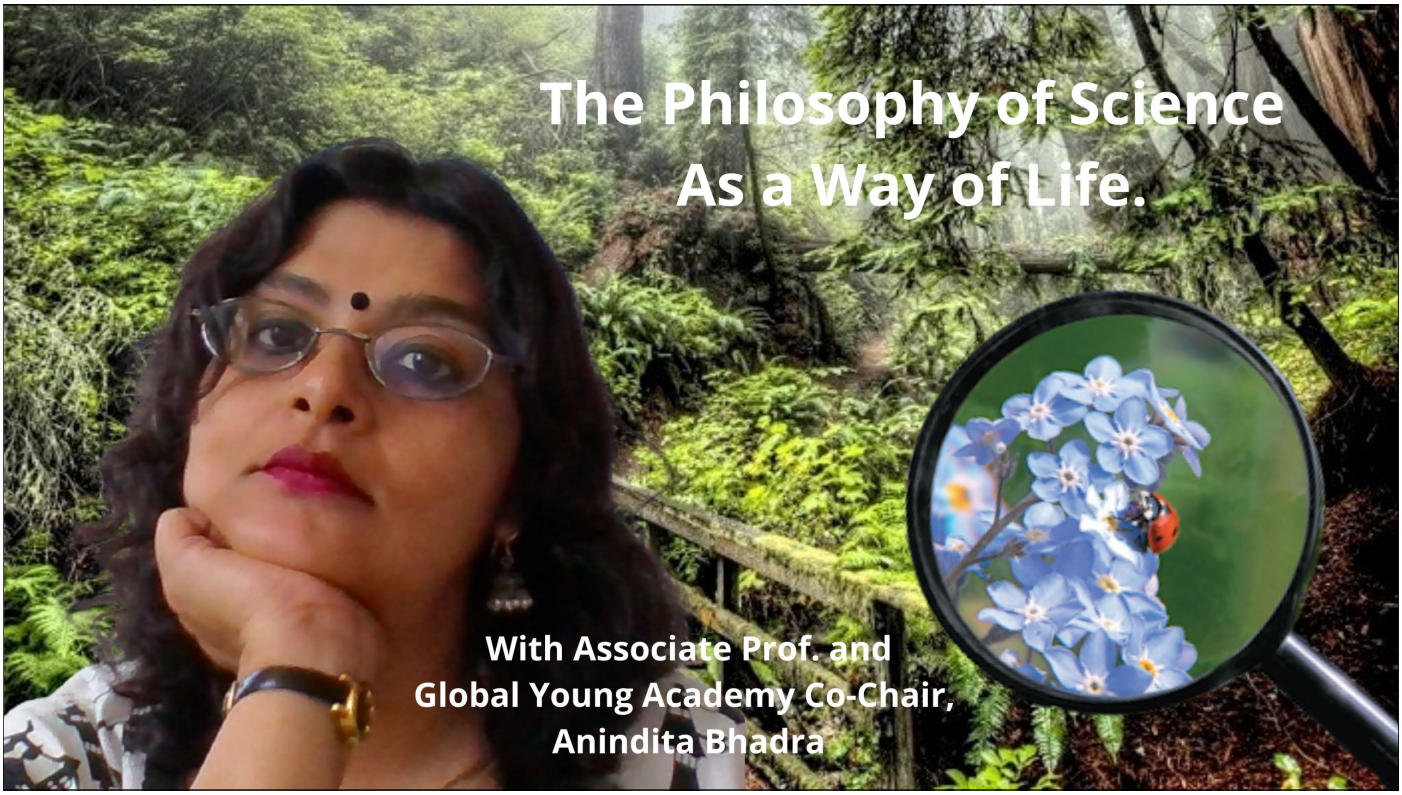
When that part of the design is complete, you still have a length of thread in the needle. You move on to another part, you want to add another colour and see how the design is evolving, and the saga continues, until someone calls, or your neck hurts or you simply have a job to do that can no longer be ignored. That would be equivalent to the lives being exhausted so that you simply can't go on further unless you are such a maniac that you want to spend actual money on the game in order to keep going.

I have often wondered if anyone ever does that! And so, just as the bubbles or candies or whatever colourful stuff you are popping keep moving on your screen, making and breaking patterns, keeping you engaged, so do the threads. You keep going, just a little more than you intended originally, perhaps with eyes smarting and neck hurting. Eventually, you fold up your stuff and leave the pattern behind, to be picked up at your next free 15 minutes, which would invariably stretch out a little further, making you feel guilty, but with a sense of satiation – that feeling of childish glee that goes with playing with colours.

■ ■ ■

This article was first published on the website of Ass. Dr. Anindita Bhadra,
www.kathaykathay.wordpress.com

Click, or tap, the image of Ass. Prof. Anindita Bhadra and listen to her podcast via the You Tube channel of The Next Truth



How Does GPS Work?

Humans have looked to the skies to find their way since ancient times. Ancient sailors used the constellations in the night sky to figure out where they were and where they were going.

Today, all we need is a simple hand-held GPS (short for Global Positioning System) receiver to figure out exactly where we are anywhere in the world. But we still need objects high in the sky to figure out where we are and how we get to other places.

Instead of stars, we use satellites. Over 30 navigation satellites are zipping around high above Earth. These satellites can tell us exactly where we are.

The Short Answer:
GPS is a system of 30+ navigation satellites circling Earth. We know where they are because they constantly send out signals. A GPS receiver in your phone listens for these signals. Once the receiver calculates its distance from four or more GPS satellites, it can figure out where you are.

Click, or tap, the Neandertaler holding a cell phone and watch, "How does GPS work?" via the You Tube channel of NASA Space Place

GPS in everyday life

There's a whole lot of important things GPS is used for—but perhaps nothing is more important than finding the quickest slice of pizza! Check out our fun Space Place in a Snap animation "GPS and the Quest for Pizza" to learn more about how GPS works.

What is GPS?

GPS is a system. It's made up of three parts: satellites, ground stations, and receivers.

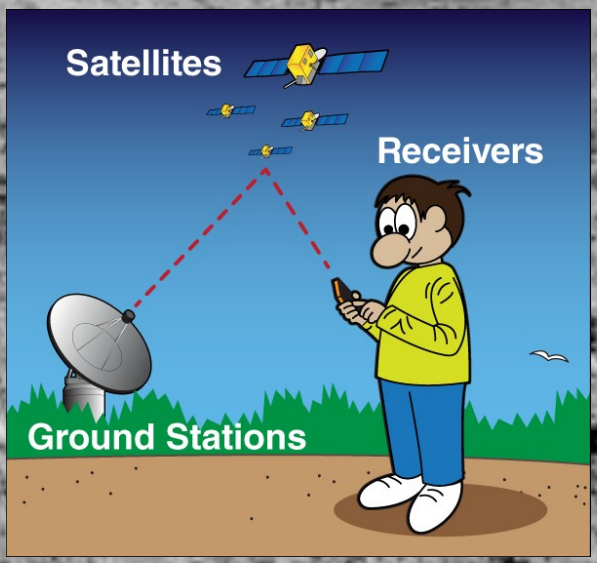
Satellites act like the stars in constellations—we know where they are supposed to be at any given time.

The ground stations use radar to make sure they are actually where we think they are.

A receiver, like you might find in your phone or in your parents car, is constantly listening for a signal from these satellites. The receiver figures out how far away they are from some of them.

Once the receiver calculates its distance from four or more satellites, it knows exactly where you are. Presto! From miles up in space your location on the ground can be determined with incredible precision! They can usually determine where you are within a few yards of your actual location. More high-tech receivers, though, can figure out where you are to within a few inches!

The ancient sailors of history would be flabbergasted by the speed and ease of pinpointing your location today.

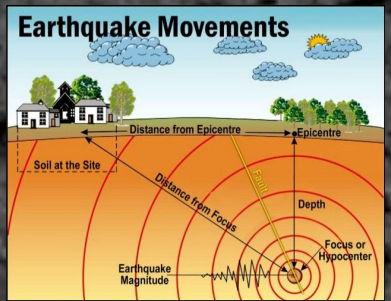


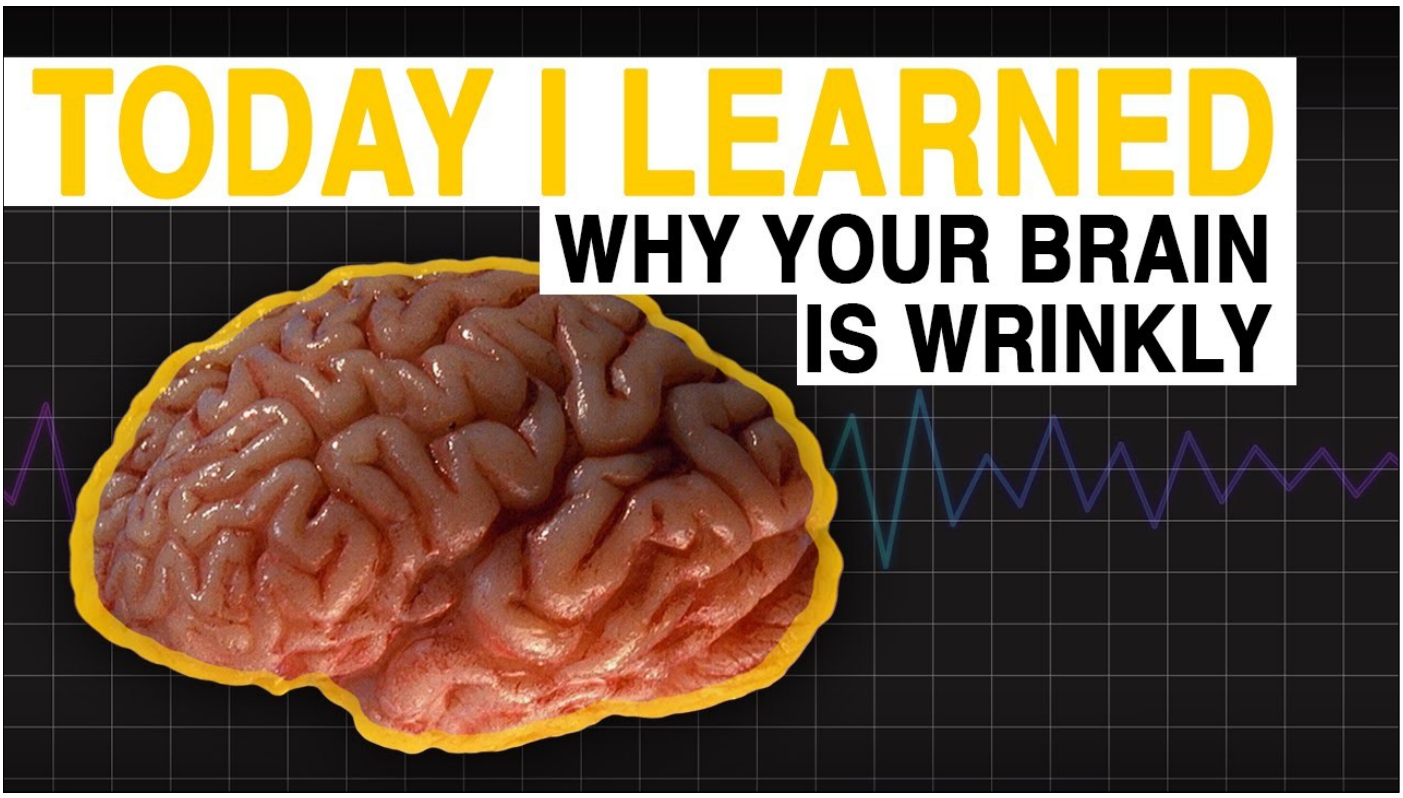
GPS can be used to keep an eye on dangerous natural hazards, too!

GPS can help provide early warning of tsunamis. *Credit: mnlamberson.*

GPS is used to monitor volcanoes.

Earthquakes
The aftermath of Earthquakes can be rapidly monitored using GPS.





Click, or tap, the brain and/or the whale image and learn more about...***ieuw***...whale poop and why we have such a funny looking brain, via You Tube

‘Today I Learned’: 35 Interesting Things People Didn't Learn At School

By Jonas Grinevičius and Austėja Akavickaitė, www.boredpanda.com

Life's a never-ending rollercoaster of education, fun facts, and interesting trivia. And the ride's free if you're willing to stay curious all your life. One of the best places to expand your mind on a daily basis is the ‘Today I Learned' subreddit, boasting over 25.2 million members, over 12 years of service on Reddit, and a community that values curiosity and learning above all else.

We've collected some of the most interesting recent things that the TIL community shared for you to expand your minds with, dear Pandas, so go on and have a look below. And when you're done and if you're thirsting for more knowledge like a true Ravenclaw, you'll find our earlier posts about the TIL subreddit right over here, and here, as well as here.

Separating fact from fiction, however, isn't as easy as it might seem when scrolling through the TIL subreddit. Especially when different authority figures whom we trust say different things.

I spoke about learning to separate the truth from falsehoods and how to diplomatically challenge people who might be wrong with Lenore Skenazy, the president of Let Grow and the founder of the Free-Range Kids movement.

Read on for her full and in-depth interview with **Bored Panda**.

■ ■ ■

This was first published on the website of Bored Panda, **www.boredpanda.com**

Bill Nye (of Science Guy fame) invented a hydraulic component used on the 747 airliners, and holds three patents for other inventions.

Saffron, the world's costliest spice by weight, has been cultivated by humans for at least 3500 years and there are no known Saffron plants in the wild. Scientists still disagree about which part of the world the plant orginated. It takes 150,000 flowers to make 1 kg of Saffron spice.

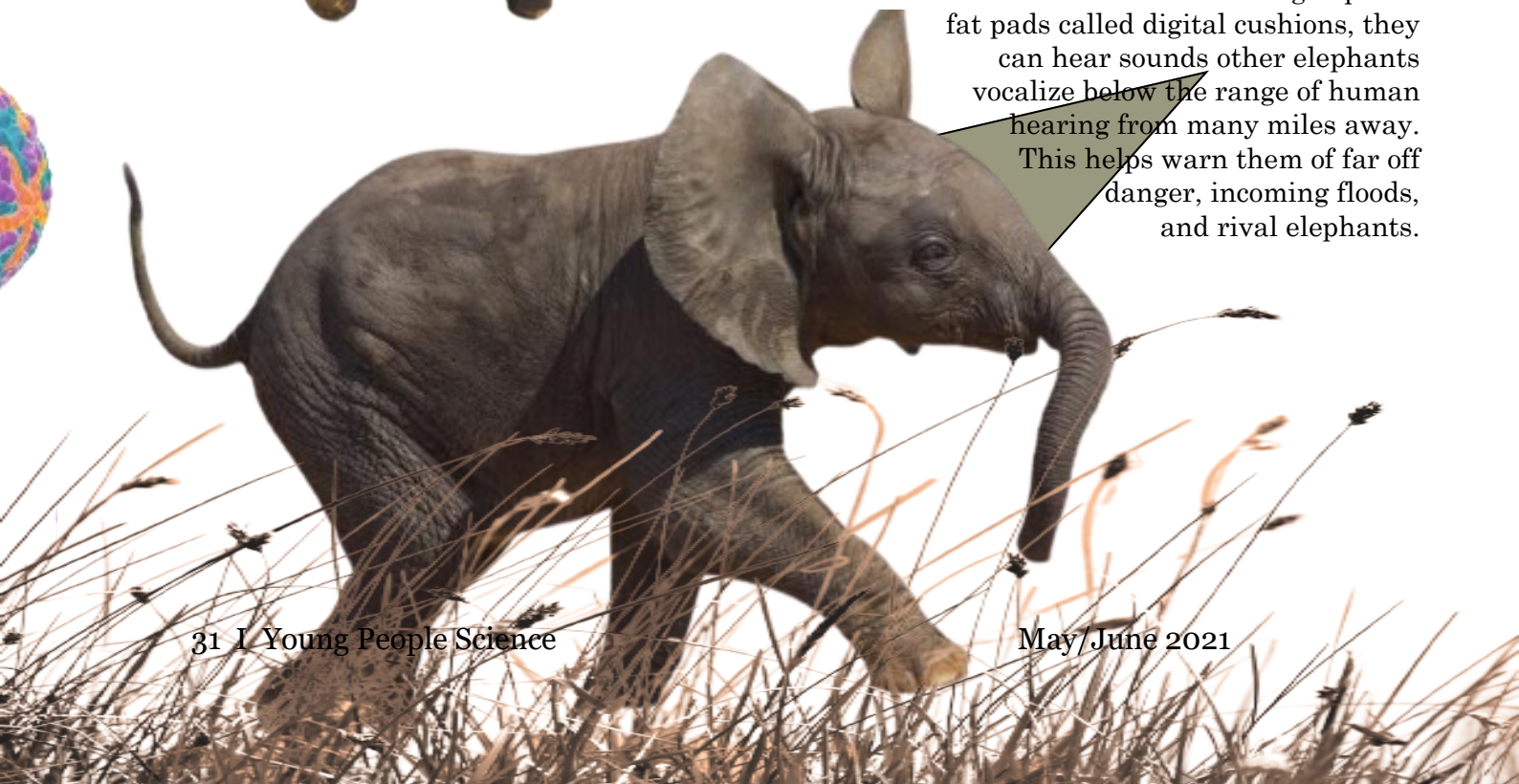
Habsburg Emperor Joseph II tried to reform Austria into "ideal Enlightened state". He abolished serfdom, removed restrictions against Jews, gave religious freedom to Protestants and Orthodox and tried to weaken power of Catholic church. But as soon he died all his reforms were abolished.

When your immune system fights an infection, it cranks up the mutation rate during antibody production by a factor of 1,000,000, and then has them compete with each other. This natural selection process creates highly specific antibodies for the virus.

Dogs and cats circle around before bedding down as a throw-back to their wild ancestors. Their survival instincts provoked them to position themselves in the direction of the wind to pick up predator scents and choose the best angle for keeping an eye on the environment.

People keep finding meticulously crafted hollow dodeca-hedrons throughout Europe dating back to the Roman Empire but historians have no idea what they're supposed to be used for as there's no historical record of them anywhere. Theories range from dice to knitting.

Elephants can hear through both their ears and feet. Through special fat pads called digital cushions, they can hear sounds other elephants vocalize below the range of human hearing from many miles away. This helps warn them of far off danger, incoming floods, and rival elephants.



DiD You KNOW?

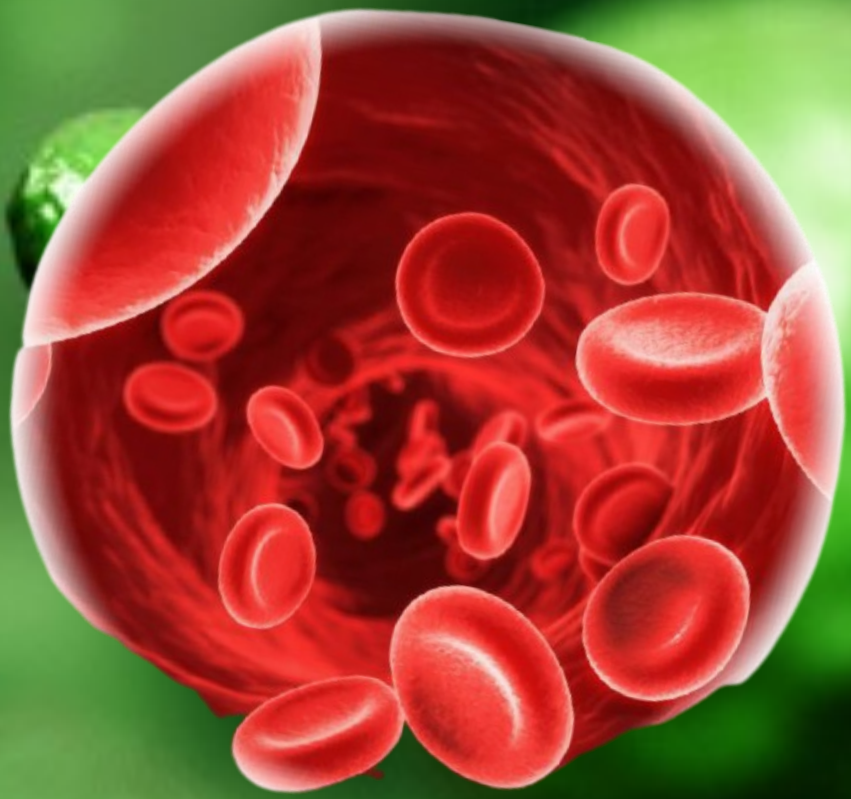
Click, or tap, any of the images and learn all about Biology via Youtube videos.

The Barbados threadsnake *(Tetracheilostoma carlae)* is a species of threadsnake. It is the smallest known snake species. This member of the Leptotyphlopidae family is found on the Caribbean island of Barbados. It has been reported to be on the islands of Antigua and Barbuda. The snake was first identified as a separate species in 2008 by S. Blair Hedges, a herpetologist from Pennsylvania State University.

Biology

Biology is a field of natural science that focuses on the study of life and living organisms. This science includes several other branches, which study more specific subjects, such as botany, zoology, ecology, entomology, and ichthyology.

This field itself is diverse and covers various topics, which relate to the properties of life.



Ever wonder why the colour of our blood is red?Well, the iron present in our blood forms a ring of atoms called porphyrin, the shape of this structure produces the red colour. The shape of the porphyrin is affected by the presence of oxygen in your body.

7 Tips To Beat Exam Anxiety

No matter how prepared you are for an exam you can't help but feel some anxiety like the butterflies in your stomach and potentially forgetting everything.

Feeling some anxiety is normal as your body releases adrenaline in times of stress which actually triggers your fight-or-flight response. So here are some scientific tips to help you beat that exam anxiety.

Exam anxiety is an epidemic among students worldwide. One study found that out of 1,300 people questioned 96% say that they have experienced exam anxiety at some point in their lives. And this is a problem because another study found that students who were deemed highly anxious perform 12% worse on exams and those who were slightly anxious for not anxious at all.

Exam anxiety, like all anxieties, is a spectrum meaning that there's all sorts of symptoms and varying levels of Feelings. Some people may just feel their heart beating a little bit while others are completely debilitated with nausea and vomiting before every exam.

Getting at least six hours of sleep is crucial before an exam. Making sure you are well-rested will give you the confidence to face the challenge at hand. pulling an all-nighter is a huge no-no when it comes to your brain having the ability to succeed.

Studies have actually shown that those who have **a balanced diet** up to one week before an exam, actually perform better than those who have a high meat or high-protein diet. In fact it's best to have a breakfast that's high in fiber and high in carbohydrates so that the energy is released slowly and your brain doesn't crash mid exam. losing energy quickly which means you might start to panic when you can't even answer the easy questions.

A positive self-image tree has been known to boost confidence and lower exam anxiety but it only works if you set yourself realistic goals.

Now I am not telling you to lower your expectations but it is not mentally healthy to expect 100% on all of your exams.

So, while feeling confident for an exam is important it's essential that you **keep your feet planted on the ground**. to help de-stress try and picture yourself in a happy moment whatever that might be and then quickly switch to imagining yourself in the exam room.

I'm on a boat with whales around me. Humpbacks, fin whales, hector's, even a blue whale. One comes up to me and lets me pet it then he playfully splashes me in winks he loves me and I am one with him also glycine, alanine, valine and leucine are all nonpolar acids and this is how you drop them in an exam.

This helps your brain to associate those happy feelings with writing the exam and Prime's you to be ready. In addition, before the exam **try and picture questions that you have already studied** the answers to so that it will boost your confidence going in. Speaking of priming it's important that you familiarize yourself with the exam room. ›››

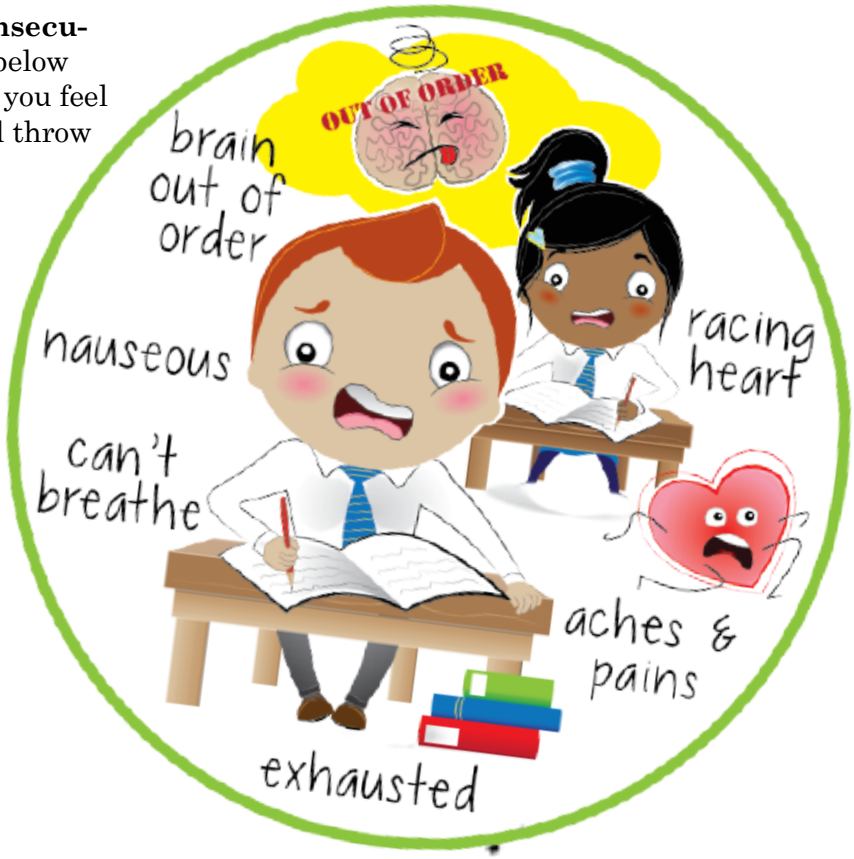
If the exam room isn't your classroom make sure you **take a short field trip** there a few days before this will also ensure you aren't late. By seeing the setting beforehand it will help your brain be at ease during the e xam.

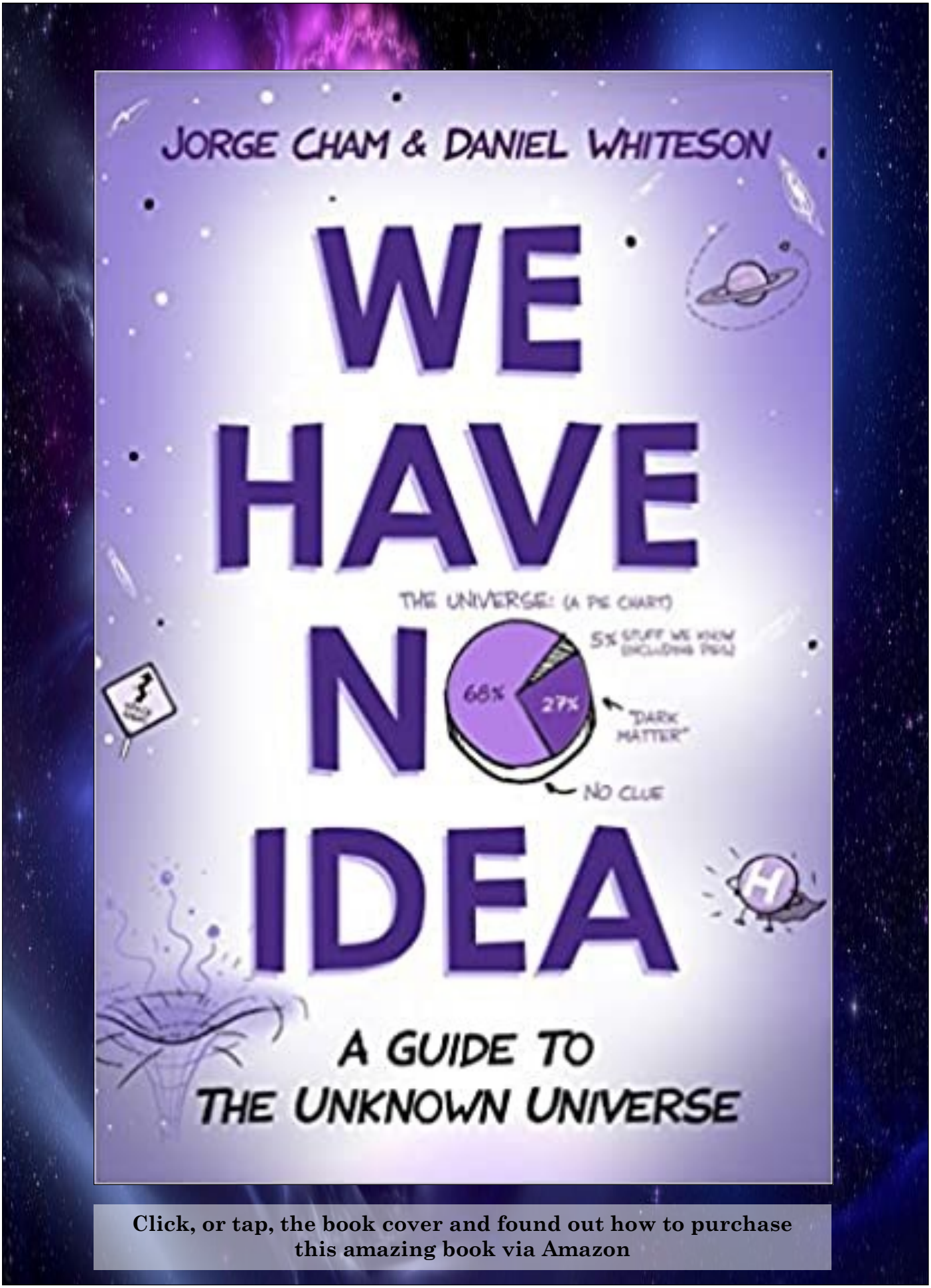
How can you feel more confident and perform better? Well hopefully you have a good circle of friends and study buddies you can work with. There's always that one Debbie Downer in the group that kind of lowers your self-confidence . This combined with your past experience on exams which might not have always been good, can lower your self-confidence moving into the exam.

A helpful trick is to **write down these insecurities** on a piece of paper and then right below them write down a rebuttal which makes you feel confident then crumble up that paper and throw it away.

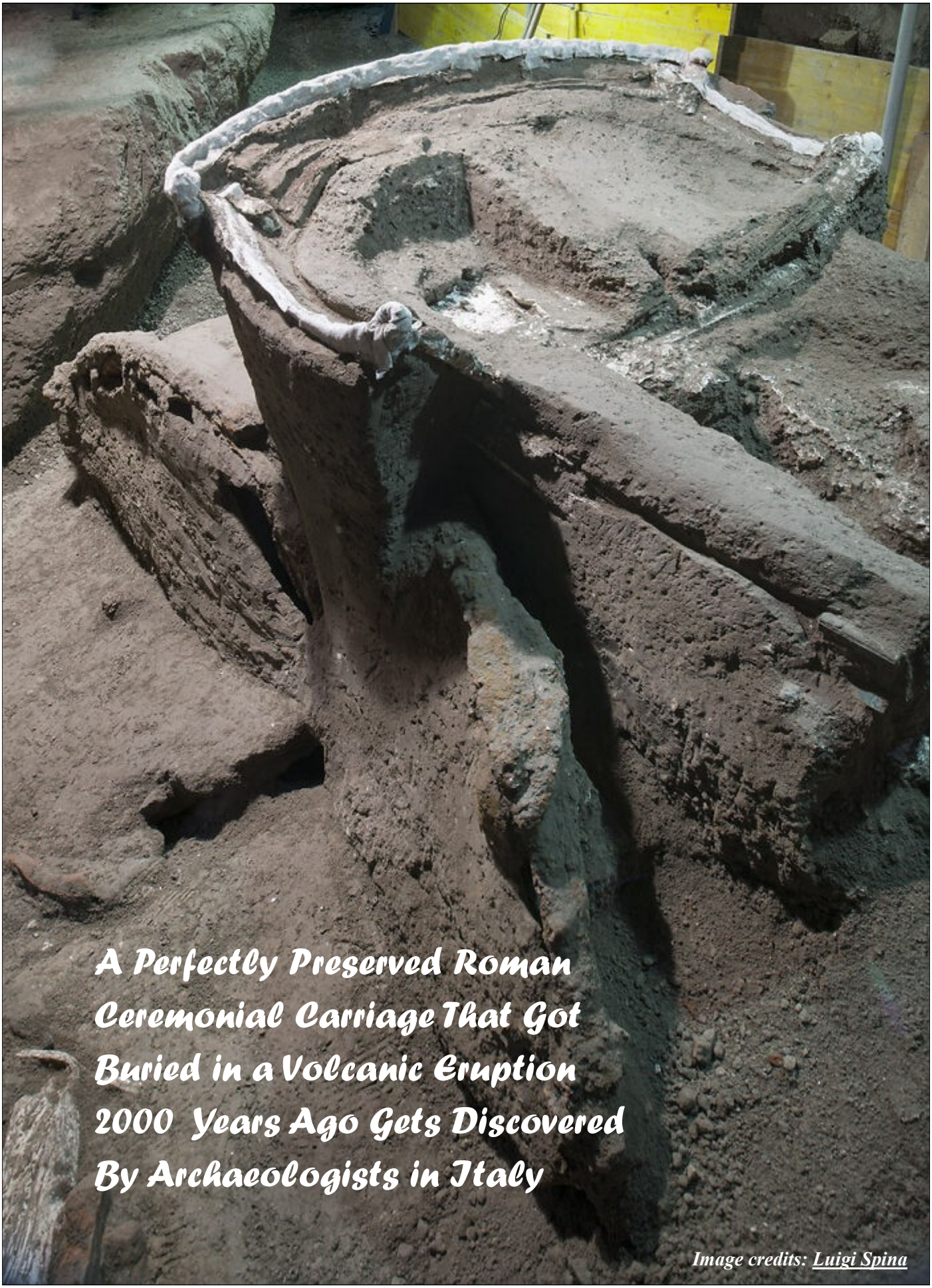
This can help you build confidence before a test and these symbolic gestures are actually effective. One study found that anxious students who wrote down their worries before a test did better than those who didn't.

Hopefully these scientific tips will help you go into your exam with confidence and feeling much less anxious. And. unlike most trends, science is logical and never end. Science never goes out of style!





Click, or tap, the book cover and found out how to purchase this amazing book via Amazon



A Perfectly Preserved Roman Ceremonial Carriage That Got Buried in a Volcanic Eruption 2000 Years Ago Gets Discovered By Archaeologists in Italy

Image credits: Luigi Spina

A 2000 Years old Roman Ceremonial Carriage Gets Discovered by Archaeologists In Italy

By Lukas Garnelis and Jurgita Dominauskaitė, www.boredpanda.com

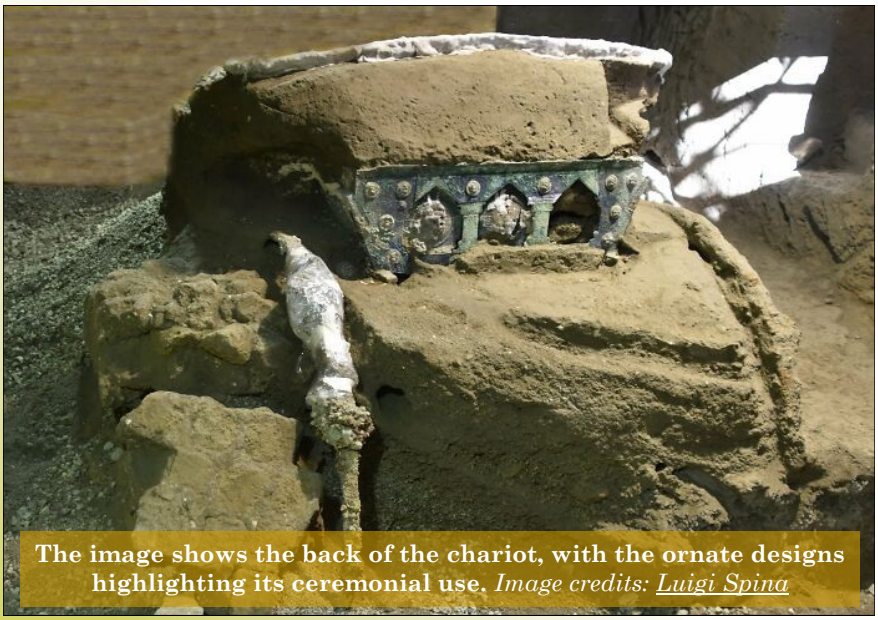
The ancient city of Pompeii near Naples in Italy was lost when ashes buried it after the eruption of Mount Vesuvius in 79 AD. The first time when the ruins of Pompeii were found was in the 16th century and intentional excavations began in the mid-18th century. The area is 66 hectares (165 acres) large and even after a few centuries, archeologists haven't stopped making new discoveries.

The area is an archeological treasure trove. During excavations a row of shops, a large amount of jewelry, vases, statuettes, gold, silver, and bronze coins, frescoes, murals, and mosaics were found. Also the remains of the people who became victims of a natural disaster. And a third of the area still remains unexplored. Now a new artifact was uncovered–an almost entirely intact ceremonial chariot.

The latest discovery in the archeological park of Pompeii is an almost intact four-wheel chariot.

One of the newest discoveries in the Archaeological Park of Pompeii was made January 7th this year. Archeologists unveiled a ceremonial chariot. It was found near a stable where three horses were uncovered back in 2018.

The bronze medalions surrounded by decorative motifs, represent male and female figures in relief, depicted in erotic scenes. *Image credits: Luigi Spina*



The image shows the back of the chariot, with the ornate designs highlighting its ceremonial use. *Image credits: Luigi Spina*

Although the chariot is in good shape for being buried for two millennia under ashes and surviving the collapse of the walls and ceiling, it was very fragile and archeologists were using special techniques to uncover it without damaging it.

Because of the fragile state of the chariot it was difficult to excavate it.

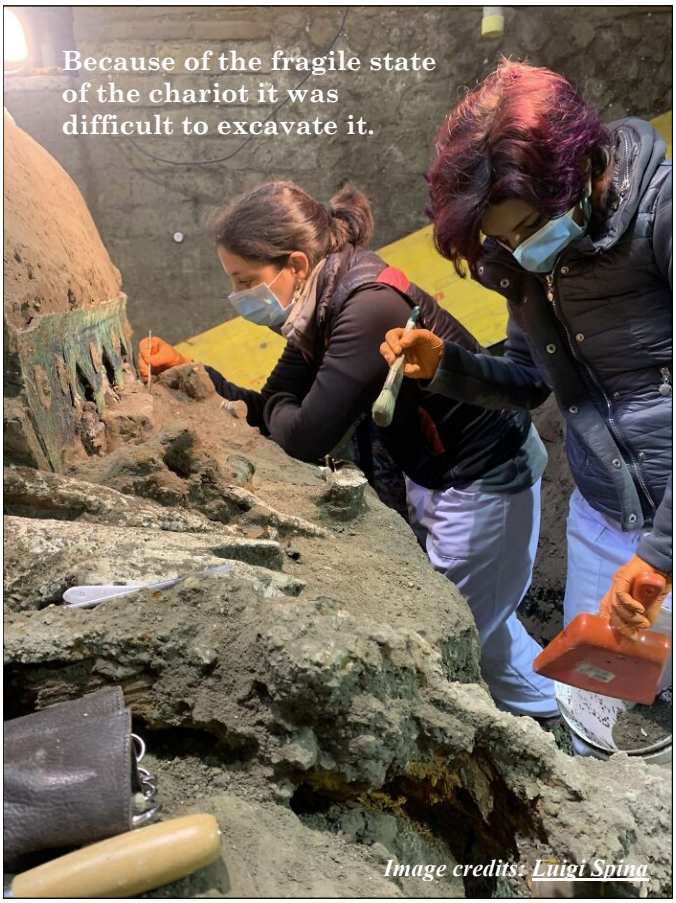
The discovery was made after starting an investigation of illegal digging. Looters dug tunnels through the site leading to one of the villas. They grazed the four-wheeled chariot, but luckily, didn't damage it. ›››

During the weeks archeologists were uncovering the chariot, the site was guarded by local officers to prevent any looters form stealing. To make sure the chariot was salvaged, archeologists worked on weekends just so they could transport the chariot to a safe place to examine as soon as possible. Now it is being further cleaned from the volcanic material in the laboratory where experts will begin a lengthy restoration and reconstruction process.

The chariot was found in a double-level portico connected to stables at an ancient villa at Civita Giuliana.

The chariot could have been used to carry the bride to her new household.

The discovery of this chariot is exceptional not only because it is preserved in its entirety, but also because previously only practical vehicles used for transport and work were found, but this time there is proof that leads to believe that the newly found chariot was used for ceremonies. The chariot was decorated with iron components, bronze and tin embellishments. Archeologists also found traces of cushions, ropes and an imprint of two grains of wheat on the seat.



The grains of wheat could indicate someone wishing the married couple fertility.

The director of the Archaeological Park of Pompeii, Massimo Osanna, believes that the decorations can indicate that the chariot was used in community festivities such as parades, processions, and weddings. It could have been used to carry the bride to her new household.

This is the first chariot of its kind found in Italy, as previously found carriages were used only for transportation.

This carriage is first of its kind found in Italy. Massimo Osanna described it as "an extraordinary discovery that advances our understanding of the ancient world." It could only be compared with carriages found 15 years ago in Thrace, Northern Greece on the boarder with Bulgaria. One of those carriages is similar to the one found in Pompeii, but it didn't have decorations on it. These kinds of chariots, called pilentum, were used by the wealthy for religious cults, but also to represent the owner's higher status.

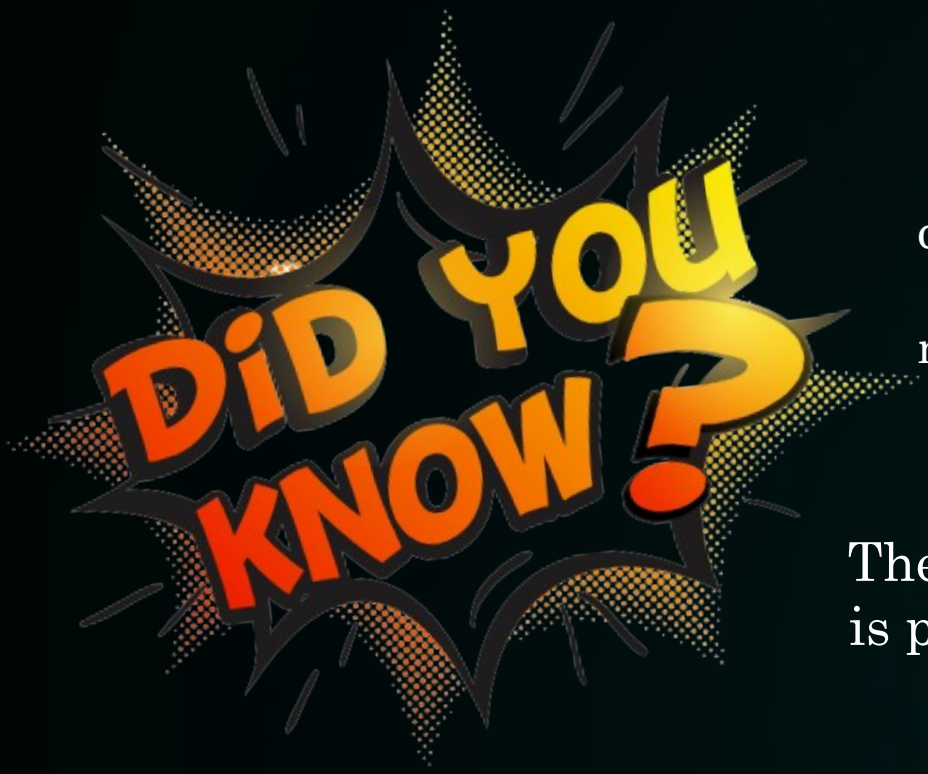
This particular villa to the north of Pompeii in Civita Giuliana, in which the chariot was found is very big and valuable for research, because it still had people living it during the eruption. A lot of other villas were emptied for renovations after an earthquake in 62 AD.

The Minister of Culture Dario Francheschini commented that "Pompeii continues to amaze with all of its discoveries, and it will continue to do so for many years yet, with twenty hectares still to be excavated. But above all, it demonstrates that valorisation can occur and tourists can be attracted from all over the world, whilst at the same time research, education, and studies are being conducted, and a young director like Zuchtriegel will develop this commitment."

This find attracted not only the attention of scientists, but people on the internet where fascinated about the incredibly well preserved chariot too. Here are some comments of what people said.

■ ■ ■

This article was first published on the website of Boredpanda. To view all photos visit, **www.boredpanda.com** Or, click any of the photo's.



The word 'hundred' derives from old Norse word 'hundrath'. It meant not 100 but 120

The number 5 in Thai is pronounced as 'Ha'. *555 :D*

Googol or 10^{100}

The term was coined in 1938 by 9 year old Milton Sirotta, nephew of American Mathematician Edward Kesner

The **'zero'** derives from the Arabic word' *sifr* which also gave us the English words 'cipher' meaning 'a secret way of writing'.

How does math affect our everyday lives?

Mathematics has a HUGE impact on the world around us. Without math and mathematicians, there would be no cars, televisions, advanced drugs, and so much more. Some would say that today's world is built on the foundations of mathematics.

Math isn't simple – mention it to a student taking algebra or calculus and you will likely get rolled eyes, moans, and sounds of frustration. Talk to a physicist, banker, or chemist and you will have a much more positive response – it is fundamental to what they do every day.

Read the full article via the website of ***Did You Know Science***

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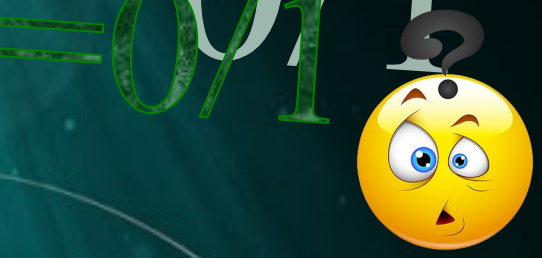

Click, or tap, the 'MATH' image and watch the You Tube documentary 'Mathematics is the queen of Sciences'

Click, or tap, the 'geometric figure' image and watch the Youtube video ***What Is The Shape of Space?***

UW NAVIGATION

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Dr. Fiona R. Cross

(DOCTOR SPIDER)

If you would like me to give a talk at your university or other institution, please get in touch. I will try to respond as soon as I can.

www.doctorspider.net

"Canine Confidential" is written by award-winning scientist —and lifelong dog lover—Marc Bekoff. It not only brilliantly opens up the world of dog behavior, but also helps us understand how we can make our dogs' lives the best they can possibly be.

Reading this wonderfully accessible treasure trove of new information and myth-busting we learn that peeing isn't always marking; grass-eating isn't always an attempt to trigger vomiting; it's okay to hug a dog—on their terms.

The detailed information contained in "Canine Confidential" has a good deal of significance for dog trainers and teachers.

www.amazon.com

Is Psychological Science Bad Science?

Psychology researchers failed to replicate over half of 100 published studies.

By Denise Cummins Ph.D., www.denisecummins.com

Scientists from dozens of laboratories recently attempted to replicate one hundred studies that had been published in three top psychology journals in 2008. The results were so startling that they have been reported all over the media: They found that only about 1 in 3 studies could be replicated, and the overall size of the reported effects was about half of that found in the original studies.

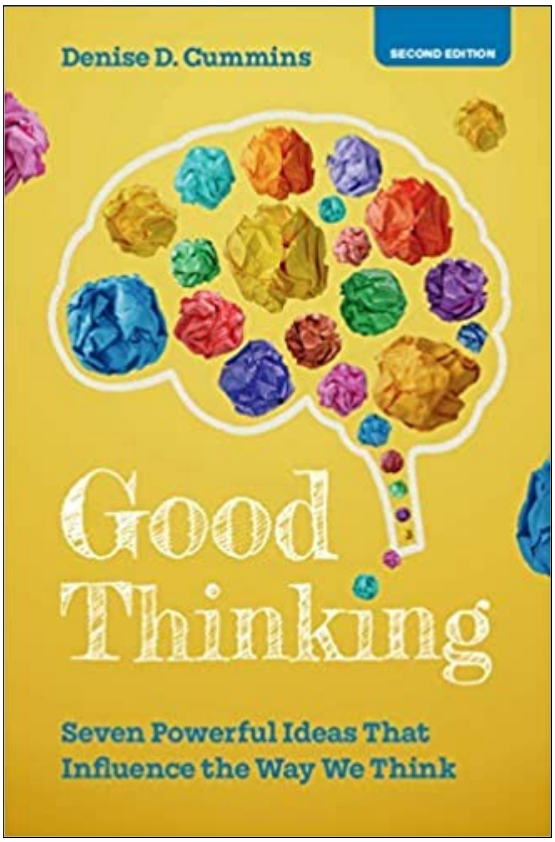
So does this mean psychological science is just a bunch of nonsense? Decidedly not. And here is why.

It isn't just psychological science

The researchers pointed out that they chose to investigate the reproducibility rate of psychology not because there is something special about psychology, but because they themselves are psychologists. But concerns about reproducibility are widespread across many scientific disciplines.

Consider, for example, biomedical research, which directly impacts the lives and health of millions. More than half of biomedical findings cannot be reproduced. For example, pharmaceuticals company Bayer recently reported that it failed to replicate about two-thirds of published studies identifying possible drug targets (Nature Reviews Drug Discovery, vol 10, p 712). During the decade he served as head of global cancer research at pharmaceutical company Amgen, C. Glenn Begley and his team sought to replicate 53 landmark papers on cancer research published in top journals and conducted by reputable labs. They found that 47 of the 53 could not be replicated (Nature, vol 483, p. 531).

In 2012, researchers from Nanjing University published a paper on genetics that showed a microRNA in rice could regulate genes in the liver of mice that had eaten the rice (Cell Research, 22:107-26, 2012). The result was of enormous importance in the field of transgenic crops. But the result could not be replicated by other labs. The researchers concluded that the published findings must have resulted from a nutritional imbalance as a result of the experimental diet fed to the mice.



This book is for anyone who wonders whether to trust the media, seeks creative solutions to problems, or grapples with ethical dilemmas. Cognitive scientist Denise D. Cummins clearly explains how experts in economics, philosophy, and science use seven powerful decision-making methods to tackle these challenges.

It's the nature of the scientific beast

The researchers pointed out

Because reproducibility is a hallmark of credible scientific evidence, it is tempting to think that maximum reproducibility of original results is important from the onset of a line of inquiry through its maturation. This is a mistake. If initial ideas were always correct, then there would hardly be a reason to conduct research in the first place. A healthy discipline will have many false starts as it confronts the limits of present understanding. ›››

Scientific American blogger Jared Horvath describes three famous replication failure cases from the history of science:

At the turn of the 17th century, Galileo rolled a brass ball down a wooden board and concluded that the acceleration he observed confirmed his theory of the law of the motion of falling bodies. Several years later, Marin Mersenne attempted the same experiment and failed to achieve similar precision, causing him to suspect that Galileo fabricated his experiment.

Early in the 19th century, after mixing oxygen with nitrogen, John Dalton concluded that the combinatorial ratio of the elements proved his theory of the law of multiple proportions. Over a century later, J. R. Parington tried to replicate the test and concluded that "…it is almost impossible to get these simple ratios in mixing nitric oxide and air over water."

At the beginning of the 20th century, Robert Millikan suspended drops of oil in an electric field, concluding that electrons have a single charge. Shortly afterwards, Felix Ehrenhaft attempted the same experiment and not only failed to arrive at an identical value, but also observed enough variability to support his own theory of fractional charges.

Science proceeds by these fits and starts, and replication failures don't always spell doom for a scientific endeavor.

In fact, Dr. John Ioannidis, a professor of medicine at Stanford, has argued for years that most scientific results are less robust than researchers believe. In a recent interview with the Washington Post, Ioannidis praised this large scale study on replication, and claimed it should have repercussions beyond the field of psychology.

We like to read about and invest in whiz-bang results.

Science is an expensive endeavor. It requires commitment of funds from the public and private sectors. And attracting that funding typically means persuading non-scientists who hold the purse strings that a line of research is worthy of investment. Work-a-day progress in a discipline rarely does the trick. Instead, "whiz-bang", never seen before, startling results are what attract attention.

The end result is that scientific journals and popular media increasingly prioritize novelty over replication when deciding which papers to publish. (The journal Psychological Science is notorious in this regard). Positive results are a must; negative results rarely see the light of day.

Scientists must publish or perish more so now than ever.

Over coffee with a colleague recently, the conversation turned to the pressure newly minted PhDs face in finding ever-vanishing tenure track science positions in academia. These positions have shrunk by more than 50% in the past decade or so. And that is where the majority of publicly-funded scientific research is conducted. He pointed out that it can now take close to eight years to complete a PhD in neuroscience, and dozens of publications are absolutely necessary to be considered competitive even for temporary post-doctoral fellowship positions.

That conversation reminded me of one I had early in my career in the late '80's. My senior colleagues openly admitted that they would never have made tenure had they been held to the standard to which they were required to hold their junior colleagues. And these were men whose wives were full time homemakers, meaning they themselves rarely needed to cook dinner, wash clothes, or look after children.

Things have only gotten worse over the past three decades. We have raised the bar for hiring, tenure, promotion, and grant seeking to such dizzying heights that the pressure to produce a 100+ publication vita for tenure, promotion, and grant money has led to the inevitable: sloppy work and/or cheating. As the replication researchers point out, much of the problem is the outcome of *"a skewed system of incentives that has academics cutting corners to further their careers. "* Studies are conducted with small sample sizes, time is rarely taken to replicate an effect in one's own lab before rushing to publication, and, in rare but disconcerting cases, outright fraud is committed in the form of data tampering.

In my opinion, these unrealistic standards of scientific productivity lie at the heart of the "gender gap" in scientific recognition. Here is how it goes: A committee is formed to put together a scientific symposium, panel, or conference. The first order of business is to attract "big names" ›››

as keynote speakers, and that means scientists who have the vaunted 100+ publication vita combined with multi-million dollar grants. And, inevitably, very few women satisfy those criteria.

Why? Because most female scientists refuse to sacrifice their reproductive effort to science. To put that in less scientific terms, women will dial back their productivity in order to have (or adopt) and raise children. Once their children are older, they swing back into gear. But those "dialed down years" mean fewer publications and grants than the macho men who put career ahead of everything. Make no mistake: Female scientists are equally brilliant, and the work they accomplish greatly informs and enhances the body of knowledge in their fields. But their contributions look "smaller and weaker" than their male counterparts because of this commitment to family.

The simplest way to address the "failure to replicate" crisis in science is to allow researchers the time necessary to replicate their own studies in order to ensure that the results are real BEFORE rushing to publication. The way to address the "gender gap" is to bring our standards of scientific excellence down from the clouds to something more humanly realistic. And that means recognizing that productivity will decline from its current dizzying heights.

Meanwhile, here are some findings from psychological science that have been replicated so many times that they are considered facts:

- About 65% of us will obey an authority's orders to harm an innocent person
- Problem-solving is a search for means to transform current states into goal states, and this process can be automated
- It is possible to learn without forming conscious memories
- Perception isn't veridical; it is your brain's best decision about the input it received from your senses
- The accuracy of memory is a U-shaped function (first and last events remembered better than the middle) regardless of whether you are trying to remember a short list or a series of events taking place over years.
- When we are given minor inducements to act in ways that are at odds with our beliefs, we change our beliefs to bring them more in line with our actions.
- Probability and utility are processed by separate areas of the brain.
- Babies are not born as tabulae rasae. They divide the world into agents and objects, and friends and foes. They understand that the behavior of objects is constrained by simple physical principles, and that agents are motivated by internal states. They prefer agents who help others and agents who show preferential treatment to their own in -group members.

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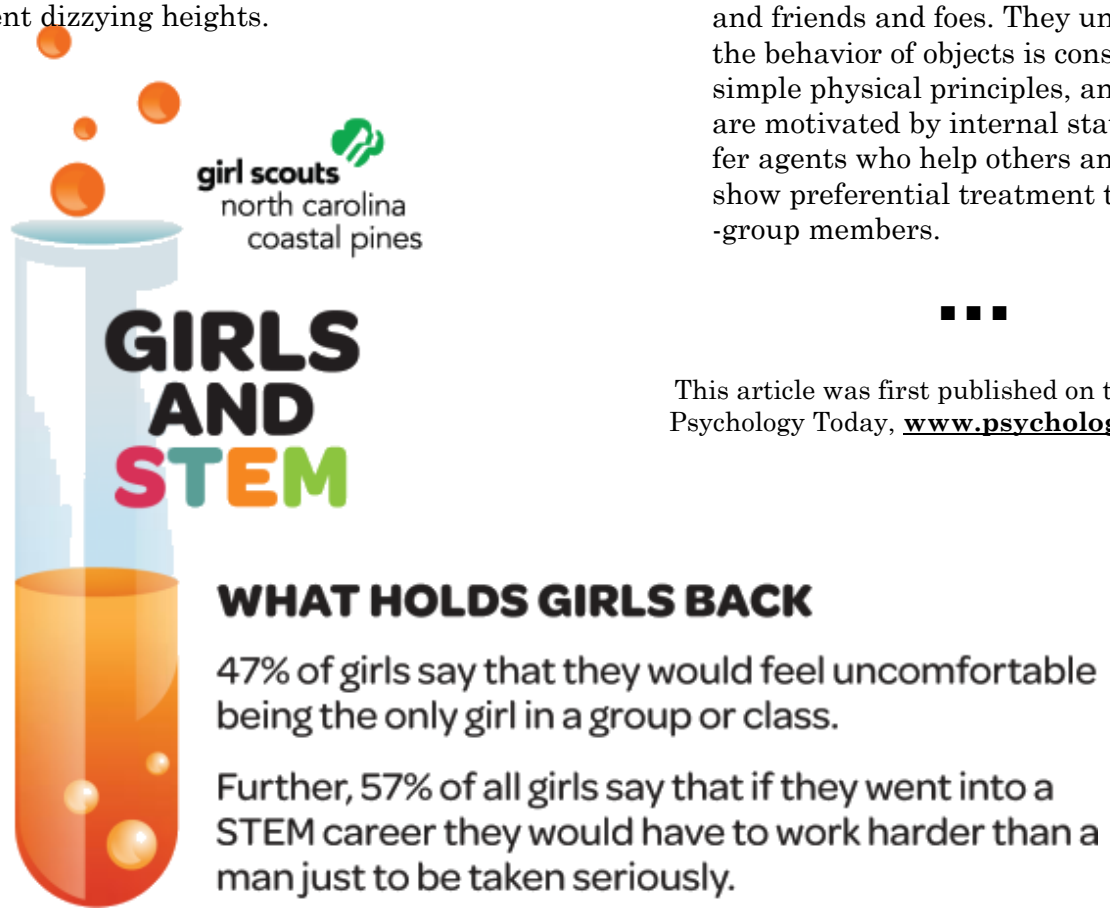
This article was first published on the website of Psychology Today, **www.psychologytoday.com**



Parapsychology

Parapsychology is a field of study that investigates paranormal or “psychic" phenomena, including purported mental abilities such as telepathy and telekinesis. Parapsychologists aim to test the existence and explore the nature of experiences and abilities in the paranormal realm.

What is Parapsychology?

Parapsychology involves the study of a variety of proposed psychic phenomena by scientists and scholars, including the search for evidence of their existence. Among these phenomena are:

- *Precognition*: perceiving information the future, such as in a vision or dream
- *Clairvoyance*: perceiving information about distant locations
- *Telepathy*: communicating mind-to-mind (without the use of normal senses)
- *Extrasensory perception (ESP)*: perception that seems to transcend the five senses, encompassing the above terms
- *Psychokinesis* or *telekinesis*: manipulating objects with the power of the mind
- *Out-of-body experiences (OBEs)* (such as perceiving one’s own body from above)
- Apparitions and hauntings

Parapsychology: Fact and Fiction

Critics of parapsychology cite a lack of robust evidence of true paranormal activity and difficulty repeating apparent findings. They also argue that parapsychologists have not been able to rule out all natural explanations for the phenomena they study.

While historical demonstrations and notions about psychic phenomena have often been shown to be false, contemporary parapsychologists have sought to use the scientific method to test their hypotheses with empirical evidence. Nevertheless, even some of the most high-profile research into apparent psychic phenomena has been challenged due to methodological concerns.

Click, or tap, the image of the eerie forest and read the answers to the questions below, on the website of Psychology Today

- **Did psychologists find proof of ESP?**
- **Should I read into coincidences?**
- **Should I believe psychics?**
- **How can we explain out-of-body experiences?**
- **Are there natural explanations for seeing ghosts?**

Did you know...

Earth's oxygen is produced by the ocean

Ever stopped to think where oxygen comes from? Your first thought may be a rainforest, but marine organisms take the bait. Plankton, seaweed and other photosynthesizers produce over half of the world's oxygen.

There are more trees on Earth than stars in our galaxy

NASA experts believe there could be anywhere from 100 billion to 400 billion stars in the Milky Way galaxy, Snopes reports. However, a 2015 paper published in the journal Nature estimated that the number of trees around the world is much higher: 3.04 trillion.

A cloud can weigh over a million pounds

Your childhood dreams of floating on a weightless cloud may get rained on with this fact: the average cumulus cloud can weigh up to a million pounds. A million pounds! That's about as heavy as the world's largest passenger jet.

Only two letters don't appear in the periodic table

The letters J and Q don't appear anywhere on the periodic table.

Go ahead and double check. I'll wait.

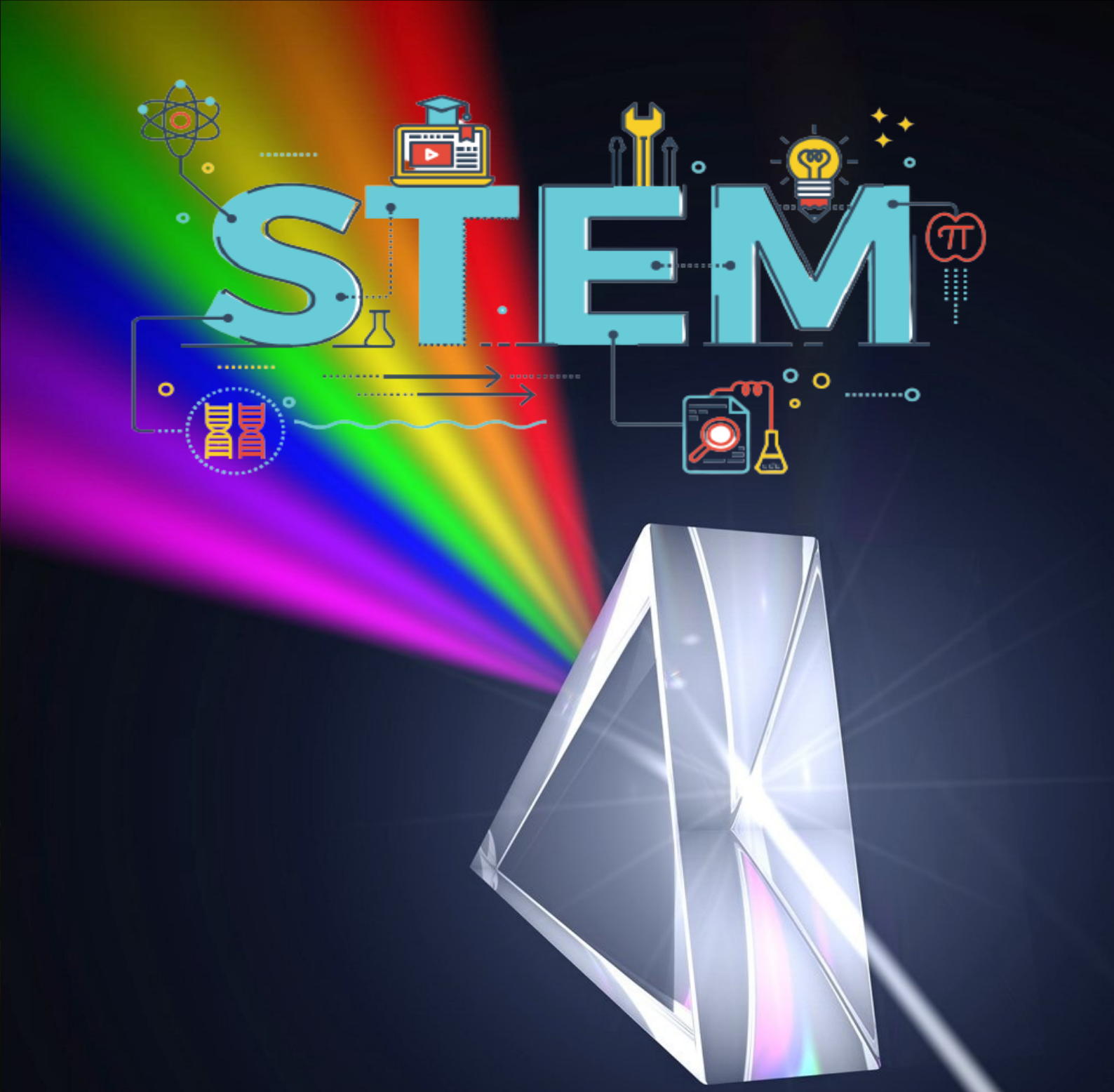
Oxygen has a color

As a gas, oxygen is odorless and colorless. In its liquid and solid forms, however, it looks pale blue.

Some science facts are just plain weird.

The human stomach can dissolve razor blades

On the rare occasion that you swallow a razor blade, don't fret. The human body is more capable than you think. Acids are ranked on a scale from 0 to 14—the lower the pH level, the stronger the acid. Human stomach acid is typically 1.0 to 2.0, meaning that it has an impeccably strong pH. In a study, scientists found that the "thickened back of a single-edged blade" dissolved after two hours of immersion in stomach acid.



What Is STEM?

STEM is a growing movement in education, not just in the United States but around the world. STEM-based learning programs are intended to increase students' interest in pursuing higher education and careers in those fields. STEM education typically uses a newer model of blended learning that combines traditional classroom teaching with online learning and hands-on activities. This model aims to give students the opportunity to experience different ways of learning and problem-solving.

Read the full article; www.lifewire.com

A Message With an Impact From Your Scientific Community!

By Maria Anna van Driel, edited by Cheryl Knight-Wilson

Life is a cruel system, is it not? Or should I say society is? As a young student, you work hard, really hard! For days, weeks, months…you put all your energy in your field/lab research, your calculations, or in finding the perfect words for your essay, thesis, book, article. During this period, you slowly start to see a fabulous outcome. Yes…you are going to ace this for sure! Proudly, you present the results of your hard work! And then, reality kicks in. People say your calculations are gibberish, you have researched in the wrong direction, and your book does not contain coherent grammar. SH*T!

Now you can throw all your notes out the window from the highest building you can find and crawl into a deep, dark cellar hiding yourself from the world and let this terrible feeling of disappointment consume you entirely. Okay, this sh*tty feeling is understandable, but do really think you have failed?

Well, the contributors of The Next Truth magazines have another thought on this that is backed up with both waterproof scientific evidence and years of life experience. And odd as it might sound to you at this point in your young life, but the successful people you see in this picture have experienced the needed ups and downs during their studies and professional careers.

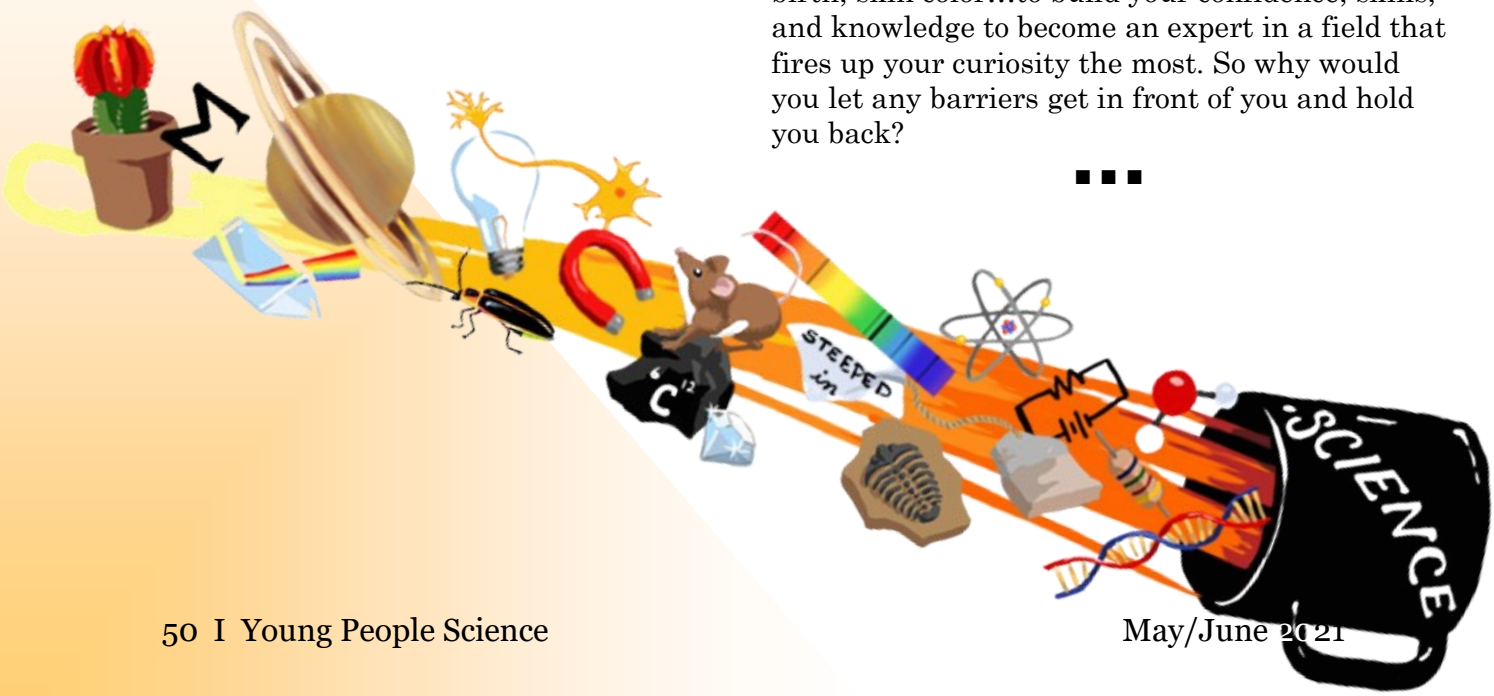
But whatever it was that crossed their paths, they never gave up on their passions and to become an expert in their fields.

And you know what, if these people can do it, you can too! So, when life knocks you down, try and land on your back, because if you can look up, you can get up. If you want a thing bad enough to go out and fight for, to work day and night for your passion, spent your time on making this your decade, you've got to start saying YES to your dreams and your unfolding future.

Believe it or not, you are going to be there one day, but you will never get there if you give up, if you give in and quit.

STEM education is YOUR path forward regardless if you are a boy or a girl, your country of birth, skin color…to build your confidence, skills, and knowledge to become an expert in a field that fires up your curiosity the most. So why would you let any barriers get in front of you and hold you back?

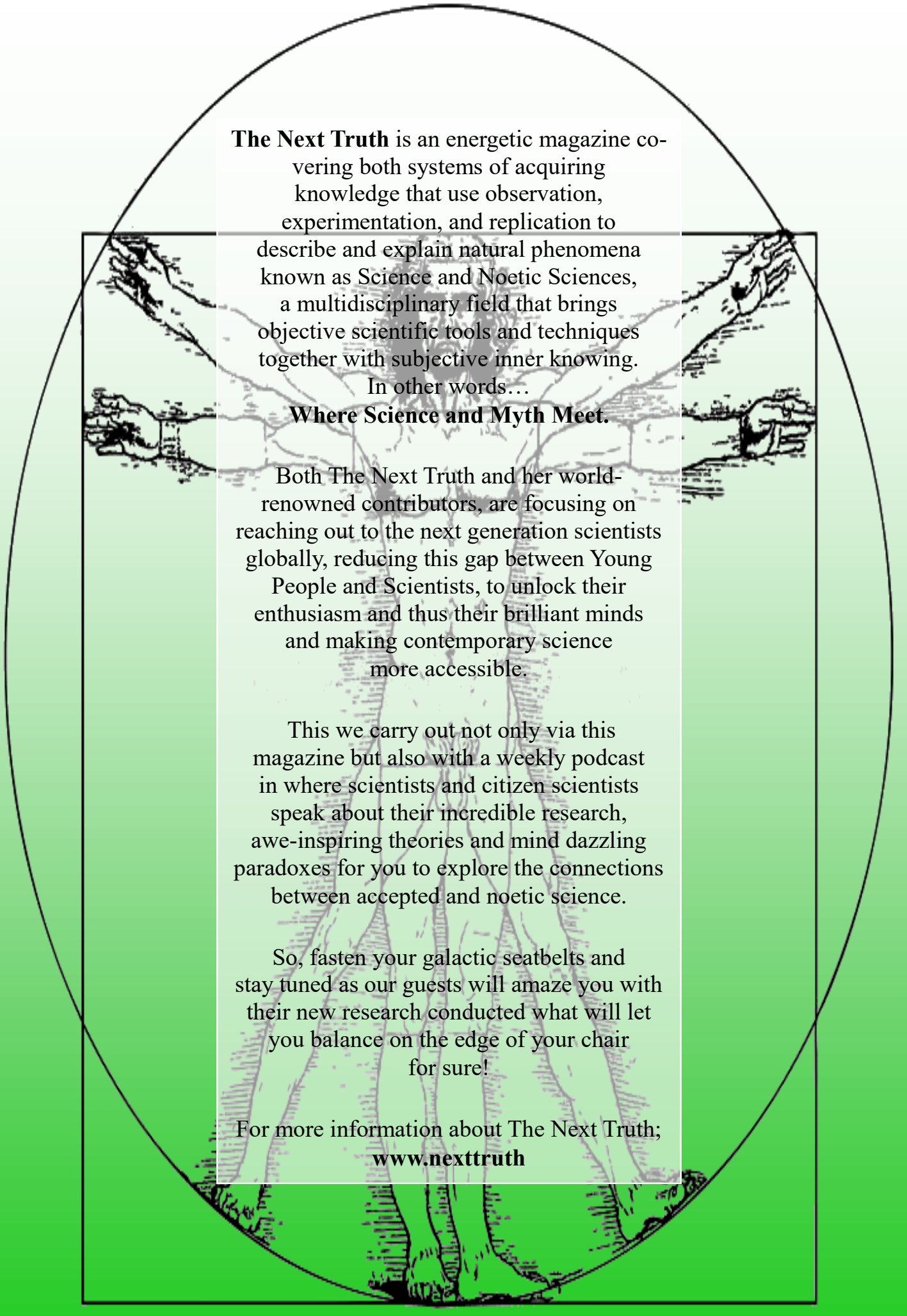
■■■



From left to right *(top)*: **1)** International PR expert, Space Technology Commercialization Transfer advisor and role model for Space4Woman Network by UNOOSA, Chiara Chiesa. **2)** Theoretical physicist and expert on Albert Einstein's theories, Prof. Emeritus Ronald Lawrence Mallett, who is best known for his research on gravitational frame dragging by light (aka Time travel by laser light). **3)** Social psychologist and the Cornelia H. Dudley Prof. of Psychology at Knox College in Galesburg, Illinois, Frank T. McAndrew, who became best known for his pioneering work on gossip, creepiness and the psychology of mass shootings.

From left to right *(middle):* **1)** Global Young Academy Co-Chair and Associate Professor at the Indian Institute of Science Education & Research Kolkata, Anindita Bhadra. **2)** German-born theoretical physicist, Albert Einstein *(14 March 1879 – 18 April 1955)* **3)** Paranormal Underground Magazine's editor-in-chief, Cheryl Knight-Wilson and PUG's publisher, Chad Wilson.

From left to right *(bottom)*: **1)** Near-Death and Out-of-Body Expert and the author of *"The Wonder of You"*, Lynn Kathleen Russell. **2)** Matthew J. Sharps, PhD, Professor of Experimental Psychology, California State University, Fresno, specializing in forensic cognitive science. **3)** Shaman and author of the workbook, *"The Way to Self-Healing Workbook: Your Guide for the Journey Inward through the Power of Your Mind"* and contributor to TNT, Tony Damian.



The Next Truth is an energetic magazine covering both systems of acquiring knowledge that use observation, experimentation, and replication to describe and explain natural phenomena known as Science and Noetic Sciences, a multidisciplinary field that brings objective scientific tools and techniques together with subjective inner knowing.
In other words…
Where Science and Myth Meet.

Both The Next Truth and her world-renowned contributors, are focusing on reaching out to the next generation scientists globally, reducing this gap between Young People and Scientists, to unlock their enthusiasm and thus their brilliant minds and making contemporary science more accessible.

This we carry out not only via this magazine but also with a weekly podcast in where scientists and citizen scientists speak about their incredible research, awe-inspiring theories and mind dazzling paradoxes for you to explore the connections between accepted and noetic science.

So, fasten your galactic seatbelts and stay tuned as our guests will amaze you with their new research conducted what will let you balance on the edge of your chair for sure!

For more information about The Next Truth;
www.nexttruth