



Vidya Vikas Education Trust's  
**UNIVERSAL COLLEGE OF ENGINEERING**

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## APPLIED SCIENCE AND HUMANITIES

### DEPARTMENT

#### VISION

The Department of Applied Science and Humanities is committed to dynamically integrate the components of Science, Humanities and Engineering to groom students to transform them as globally acknowledged professionals.

#### MISSION

The department is carrying a mission to create and disseminate the knowledge and techniques in intellectual areas of Engineering and other core areas of Applied Science and Humanities for betterment of Eco system.

To inculcate the importance of Applied Science and develop a natural flair for Engineering and Technology which in turn shall mold students into a competent professional.

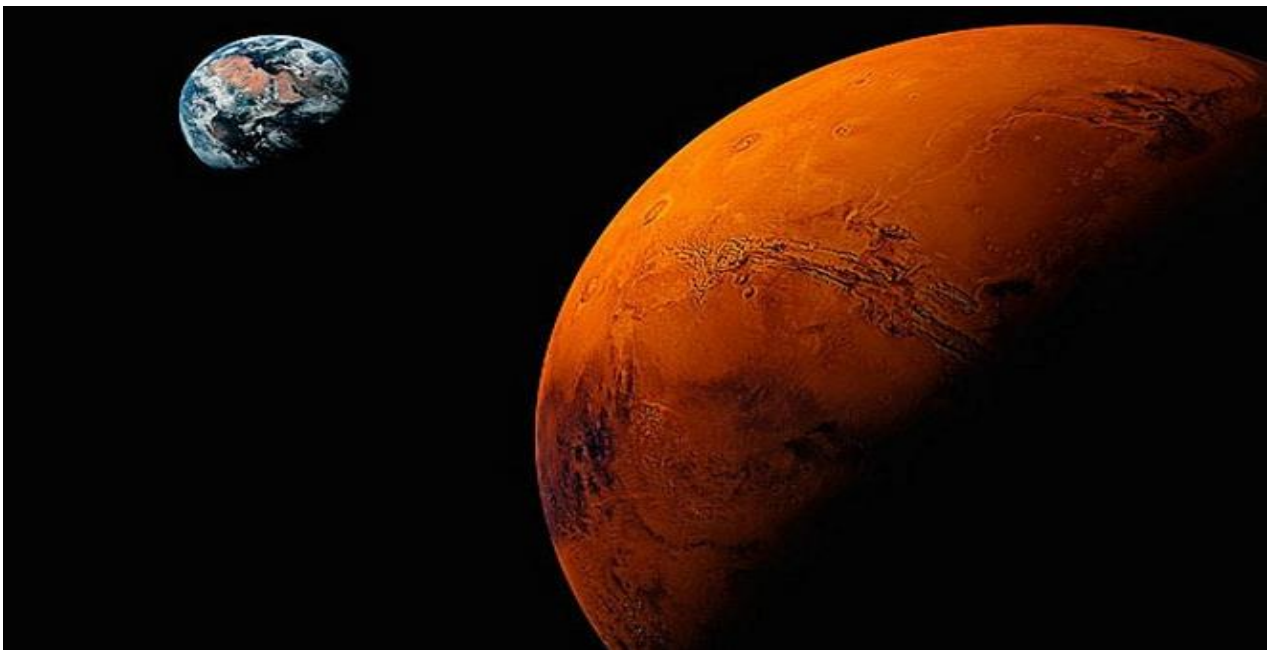
To be recognized for practicing the best teaching-learning processes to create highly competent, resourceful, and self-motivated young Engineers for the benefit of the society.

242/365  
GROW THROUGH,  
WHAT YOU  
GO THROUGH.

# The many roads to the red planet — a memoir

**As three nations prepare to send spacecraft to Mars, a planetary scientist offers her personal tour of those who led the way. By Alexandra Witze**

Once every 26 months, planetary orbits align in a way that makes it favorable to launch spacecraft from Earth to Mars. This July and August, three nations are aiming to take advantage of this window of opportunity. If all goes well, the United States and China will both launch rovers, and the United Arab Emirates will dispatch an orbiter.



These craft are the future of Mars exploration. What of the past? Planetary scientist Sarah Stewart Johnson lays it out vividly in *The Sirens of Mars*. Through a mix of personal memoir and scientific primer, she illuminates the history of astronomers and explorers who have been fascinated by this neighboring world, known to the ancients as a ruddy dot shining in the night sky.

Johnson runs through all the usual highlights of people's obsession with the red planet over the years. There's Giovanni Schiaparelli in the nineteenth century, observing dark lines he called channels or *canali*, which were later misinterpreted as canals from a Martian civilization. There's Percival Lowell decades later, using his family fortune to build an observatory in Arizona and

map Mars through the telescope night after night, hoping to reveal a world teeming with intelligent life. There's astrobiologist Carl Sagan, dreaming of turtle-like Martian creatures and working with NASA's Viking landers in the 1970s to see whether they could definitively detect life on the planet's surface. (They failed.)

The strength of Johnson's narrative lies in interweaving these better-known stories with her own development as a planetary geologist. Wherever she can, Johnson hunts through Earthly environments for clues to how life could survive on Mars. On the dormant volcano Maunakea in Hawaii, she finds a tiny fern thriving beneath fragments of broken lava. On Australia's Nullarbor Plain, she fills vials with corrosively acidic water from primordial pools teeming with microbes. These are signs that life can thrive in the most unexpected of places, against all odds — and so, perhaps, on our neighboring planet.

Life on Mars might not be like life on Earth. But if it is there, it will be close enough to be recognizable to scientists like Johnson, because of their work on extreme life on our planet. She has written a true love letter to geology, on this world and others.

By Alexandra Witze

**Source:**

<https://www.nature.com/articles/d41586020020714#:~:text=Planetary%20scientist%20Sarah%20Stewart%20Johnson,shining%20in%20the%20night%20sky>.

**Compiled by Kamlesh Tiwari**

**Interesting Facts about Mars**

- 1) Mars is named after the Roman God of war.
- 2) Mars is also known as the 'Red Planet' because its signature color comes from the large amount of iron oxide (or 'rust' as you might know it) in its rocks and soil.
- 3) Mars is home to the highest mountain in our solar system — a volcano called Olympus Mons. Standing which is about three times the height of Mount Everest!
- 4) Mars has two moons called Phobos and Deimos.
- 5) A day on Mars is 24 hours and 37 minutes and a year is almost 687 earth days

# Authors' 'invisible' words reveal blueprint for storytelling

The "invisible" words that shaped Dickens classics also lead audiences through Spielberg dramas. And according to new research, these small words can be found in a similar pattern across most storylines, no matter the length or format.



When telling a story, common but invisible words—a, the, it—are used in certain ways and at certain moments. In a study published in *Science Advances*, researchers from The University of Texas at Austin and Lancaster University in Lancaster, United Kingdom, recorded the use of such words across thousands of fictional and nonfictional stories, mapping a universal blueprint for storytelling.

In a computer analysis of nearly 40,000 fictional narratives, including novels and movie dialogues, the researchers tracked authors' use of pronouns (she,

they), articles (a, the), and other short words, unveiling a consistent "narrative curve:"

1. Staging: Stories begin with a lot of prepositions and articles like "a" and "the." For example, "The house was next to the lake, below a cliff." These words help authors set the scene and convey the most basic information the audience needs to understand concepts and relationships throughout the story.

2. Plot progression: Once the stage is set, authors incorporate more and more interactional language, including auxiliary verbs, adverbs, and pronouns. For example, "the house" becomes "her home" or "it."

3. Cognitive tension: As a story progresses toward its climax, cognitive-processing words rise—action-type words, such as "think," "believe," "understand" and "cause," that reflect a person's thought process while working through a conflict.

This combined linguistic pattern in stories may reflect how humans optimally process information, the researchers said. Prior studies have shown that young children can easily assign names to people and things; ascribing action, however, proves more difficult.

"If we want to connect with an audience, we have to appreciate what information they need, but don't yet have," said study lead author Ryan Boyd, a UT Austin alum and an assistant professor of behavioral analytics at Lancaster University. "At the most fundamental level, humans need a flood of 'logic language' at the beginning of a story to make sense of it, followed by a rising stream of 'action' information to convey the actual plot of the story." -by University of Texas at Austin

**Source:** <https://phys.org/news/2020-08-authors-invisible-words-reveal-blueprint.html>

**Contributed by Marina Thomas**

## Why it's important to save parasites

Unlike the many charismatic mammals, fish and birds that receive our attention, parasites are thought of as something to eradicate—not something to protect.

But only 4% of known parasites can infect humans, and the majority serve critical ecological roles, such as preventing wildlife over-population. Still, only about 10% of parasites have been identified and, as a result, they are mostly left out of conservation research.



U.S. National Science Foundation-funded scientists want to change that. About a dozen leading parasite ecologists, including the University of Washington's Chelsea Wood, published a paper in the journal *Biological Conservation* that lays out an ambitious global conservation plan for parasites.

"Parasites are an incredibly diverse group of species, but as a society, we do not recognize this biological diversity as valuable," said Wood. "The point of this paper is to emphasize that we are losing parasites and the functions they serve without even recognizing it."

The authors propose goals for the next decade that could advance parasite conservation.

"Even though we know little to nothing about most parasite species, we can still take action now to conserve parasite biodiversity," said North Carolina State University's Skylar Hopkins, paper and project co-lead.

Perhaps the most ambitious goal is to describe half the world's parasites within the next 10 years. Providing taxonomic descriptions allows species to be named, an important part of the conservation process, the researchers said.

"If species don't have a name, we can't save them," said Georgetown University's Colin Carlson, also a project co-lead. "We've accepted that for decades about most animals and plants, but scientists have only discovered a fraction of a percentage of all the parasites on the planet. Those are the last frontiers: the deep sea, deep space—and the world that's living inside every species on Earth."

by National Science Foundation

**Source:** <https://phys.org/news/2020-08-important-parasites.html>

**Contributed by Nitesh Choubey**

### **20 Interesting Facts**

1. Mosquitoes are the deadliest animal in the world: They kill more people than any other creature, due to the diseases they carry.
2. An ant's sense of smell is stronger than a dog's.
3. The hummingbird is the only bird that can fly backward.
4. Octopuses have three hearts.
5. If you keep a goldfish in a dark room, it will eventually turn white.
6. Cats can manipulate us with meows that sound like crying babies.
7. Despite its hump, camels have straight spines.
8. Flamingoes are only pink because of chemicals called carotenoids in the algae and fish they eat; their feathers are grayish white when they're born.
9. The hardest working muscle in your body is your heart: It pumps more than 2,000 gallons of blood a day and beats more than 2.5 billion times in a 70-year life span

10. The human nose can remember 50,000 different scents.
11. All of an adult human's blood vessels, if laid out end to end, would be about 100,000 miles, so they could encircle the earth four times.
12. Brain waves can be used to power an electric train.
13. Charlie Chaplin once entered a Charlie Chaplin look-alike competition—and lost.
14. J.K. Rowling invented quidditch after a fight with her boyfriend
15. In Japan, napping on the job is considered honorable.
16. At over 29,000 feet tall, Mt. Everest is the highest point on Earth, but it doesn't compare to the deepest point on Earth, the Mariana Trench, which is over 36,000 feet deep—nearly seven miles—in the Pacific Ocean
17. Humans could never “land” on Jupiter, Saturn, Uranus, or Neptune because they are made of gas and have no solid surface
18. Sunsets on Mars are blue.
19. Days on Venus are longer than years. Due to its slow axis rotation, it takes 243 Earth days to spin once; but it only takes 225 Earth days to go around the sun.
20. The word “strengths” is the longest word in the English language with only one vowel.

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**Edited and Compiled by Marina Thomas**

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