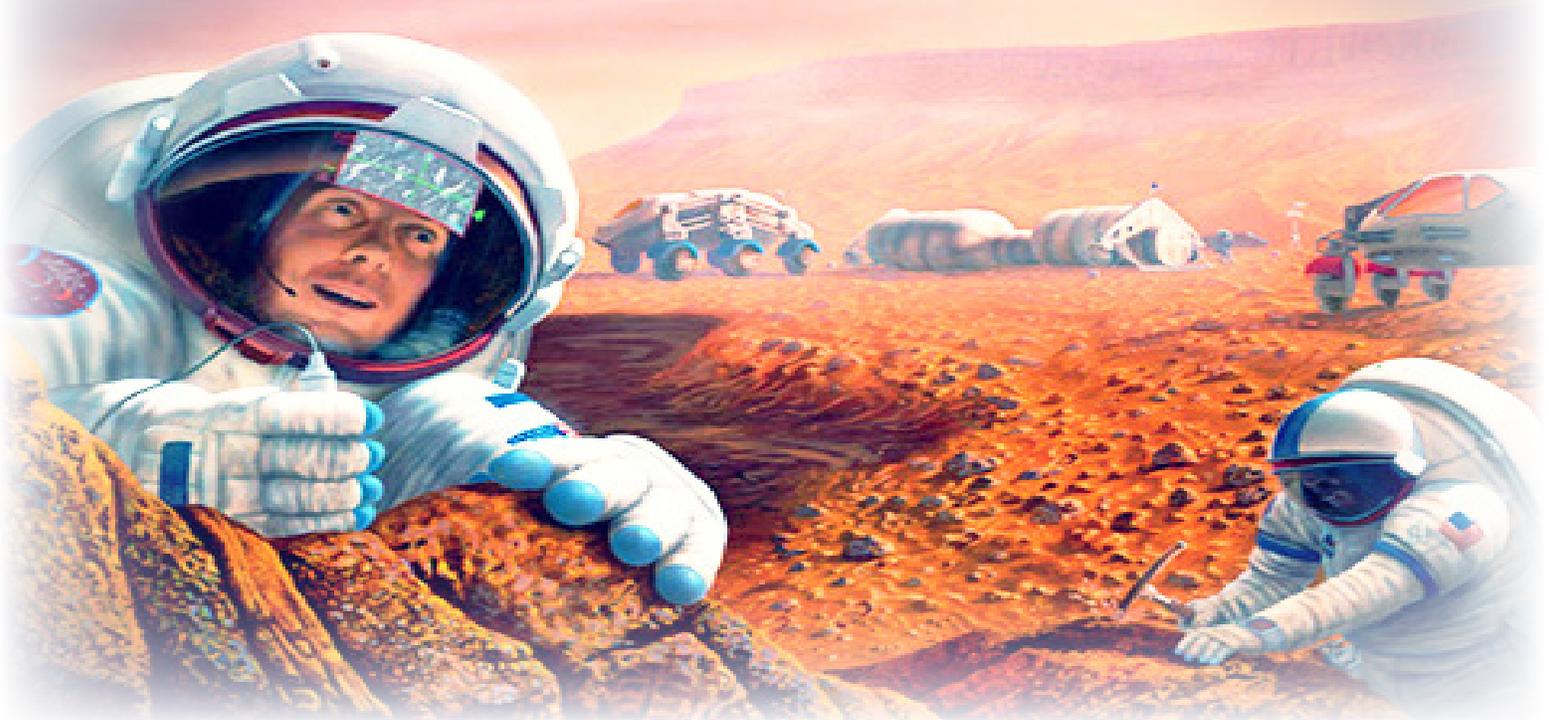


# Volume 5 Issue 1

# Effervescence



**Science is not merely a collection of facts, concepts, and useful ideas about nature, or even the systematic investigation of nature, although both are common definitions of science. Science is a method of investigating nature. a way of knowing about nature. and gathering reliable knowledge about it. In other words, science is a method for discovering reliable knowledge about nature. There are other methods of discovering and gaining knowledge about nature (these other knowledge methods or systems will be discussed further in the journal), but science is the only method that results in the acquisition of reliable knowledge.**



## INSIDE THE ISSUE

- *Evolution Of Mankind*
- *Facts about Space*
- *Black Holes*
- *One Way Trip To Mars*
- *Questions that even Science cannot Answer*
- *Fact File*
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# BLACK HOLES

**“Sure, black holes can kill us, and in a variety of interesting and gruesome ways. But, all in all, we may owe our very existence to them.” -Phillip Plait**

**But how did black holes come to be, and why are they important? Below we have 6 facts about black holes — just a few tidbits about these fascinating objects.**

**Fact 1: You can't directly see a black hole.**

Because a black hole is indeed “black” — no light can escape through it — it's impossible to detect the hole directly, no matter what kind of electromagnetic radiation is used.

**Fact 2: Very likely our Milky Way likely has a black hole.**

**Fact 3: Dying stars create stellar black holes.**

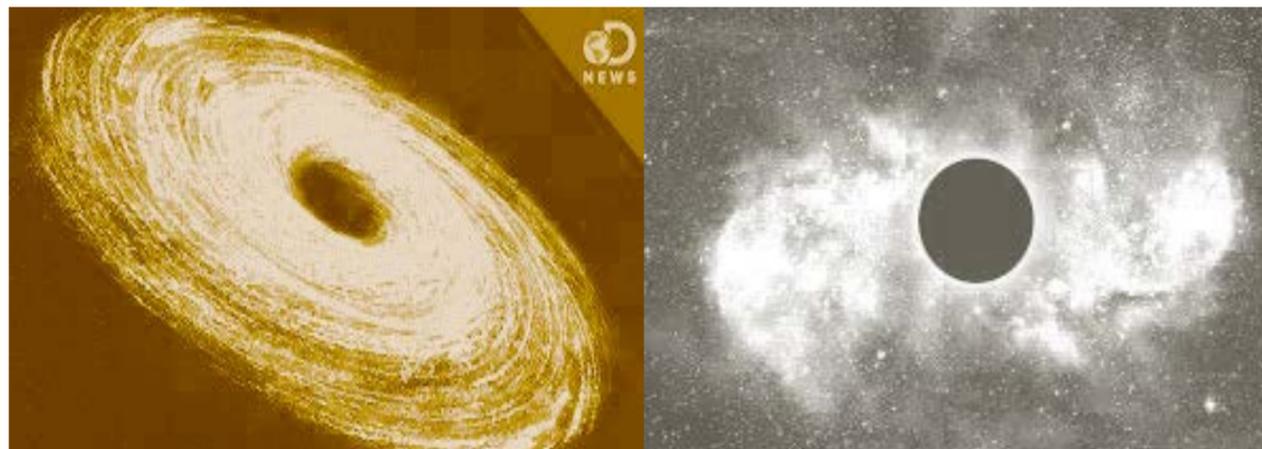
Say you have a star that's about 20 times more massive than the Sun. Our Sun is going to end its life quietly; when its nuclear fuel burns out, it'll slowly fade into a white dwarf.

**Fact 4: Black holes come in a range of sizes.**

There are at least three types of black holes, NASA says, ranging from relative squeakers to those that dominate a galaxy's center.

**Fact 5: Weird time stuff happens around black holes.**

This is best illustrated by one person (call them Unlucky) falling into a black hole while another person (call them Lucky) watches.



1



Evolution is change in heritable traits of biological populations over successive generations. Evolutionary processes give rise to diversity at every level of biological organisation, including the level of species, individual organisms, and at the level of molecular evolution. All life on Earth originated through common descent from a last universal ancestor that lived approximately 3.5–3.8 billion years ago. Repeated formation of new species (speciation), change within species (anagenesis), and loss of species (extinction) throughout the evolutionary history of life on Earth can be inferred from shared sets of morphological and biochemical traits, including shared DNA sequences. These shared traits are more similar among species that share a more recent common ancestor, and can be used to reconstruct a biological “tree of life” based on evolutionary relationships (phylogenetics), using both existing species and the fossil record. Existing patterns of biodiversity have been shaped both by speciation and by extinction. Although more than 99 percent of all species that ever lived on the planet are estimated to be extinct, there are currently 10–14 million species of life on Earth.



**WE ARE THE  
FACILITATORS  
OF OUR OWN  
CREATIVE  
EVOLTION**

2

ONE WAY TRIP TO

# MARS



**HUMAN SETTLEMENT ON MARS IS THE NEXT GIANT LEAP FOR HUMANKIND. EXPLORING THE SOLAR SYSTEM AS A UNITED HUMANITY WILL BRING US ALL CLOSER TOGETHER.**

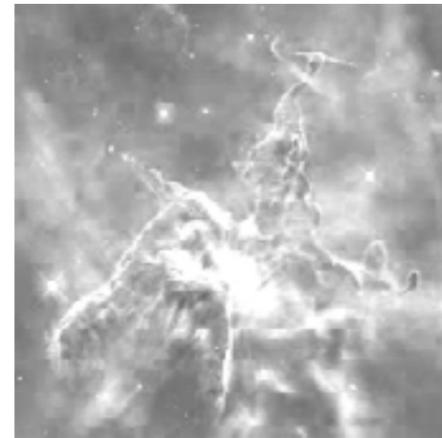
**MARS IS A STEPPING STONE FOR THE HUMAN RACE ON ITS VOYAGE OF DISCOVERY INTO THE UNIVERSE. HUMAN SETTLEMENT ON MARS WILL AID OUR UNDERSTANDING OF THE ORIGINS OF THE SOLAR SYSTEM, THE ORIGINS OF LIFE AND OUR PLACE IN THE UNIVERSE. AS WITH THE APOLLO MOON LANDINGS, A HUMAN MISSION TO MARS WILL INSPIRE GENERATIONS TO BELIEVE THAT ALL THINGS ARE POSSIBLE, ANYTHING CAN BE ACHIEVED.**

**MARS ONE IS A NON-PROFIT ORGANIZATION BASED IN THE NETHERLANDS THAT HAS PUT FORWARD PLANS TO LAND THE FIRST HUMANS ON MARS AND ESTABLISH A PERMANENT HUMAN COLONY THERE BY 2027. THE PRIVATE SPACEFLIGHT PROJECT IS LED BY DUTCH ENTREPRENEUR BAS LANSDORP, WHO ANNOUNCED PLANS FOR THE MARS ONE PROJECT IN MAY 2012.**



*"This is still probably one of the most dangerous things man will ever do, and I'm a firm believer that that shouldn't stop us from doing it."*

# FACTS YOU SHOULD KNOW



## ABOUT SPACE



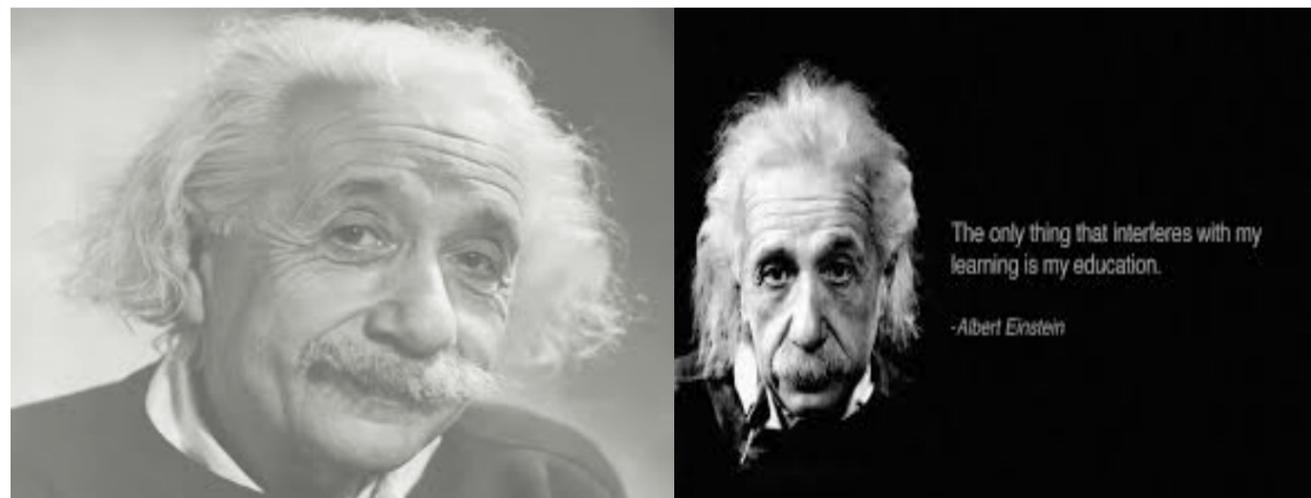
- On the moon's surface are large dark patches called seas - because this is what people once believed they were. They are, in fact, lava flows from ancient volcanoes.
- Quasars are the most distant known objects in the Universe. Even the nearest is billions of light years away.
- The brightest quasar is 3C 273, 2 billion light years away.
- The brightest stars in the night sky are not actually stars, but the planets Jupiter, Venus, Mars and Mercury.
- Jupiter's moon Europa may have oceans of water beneath its dry surface and it is a major target in the search for life in the Solar System.
- There may be 20 trillion galaxies in the Universe.
- Galaxies are often found in a group or clusters. One cluster may have 30 or so galaxies in it.
- In the 1970s the US Vikings 1 and 2 and the Soviet Mars 3 and 5 probes all reached the surface of Mars.
- The Solar System has nine planets including Pluto, but Pluto may be an escaped moon or an asteroid not a planet.
- When a spacecraft reaches 140% of the orbital velocity i.e. 11.2 km/sec, it is going fast enough to break free of the Earth's gravity. This is called escape velocity.
- Saturn's rings are sets of thin rings of ice, dust and tiny rocks, which orbit the planet around its equator.
- A tablespoon of neutron star would weigh about ten billion tones.

# Albert Einstein

Albert Einstein was a German-born theoretical physicist. Einstein's work is also known for its influence on the philosophy of science.[4] [5] He developed the general theory of relativity, one of the two pillars of modern physics (alongside quantum mechanics).[3][6]:274 Einstein is best known in popular culture for his mass–energy equivalence formula  $E = mc^2$  (which has been dubbed “the world’s most famous equation”)

## 9 Things You Didn't Know About Einstein

- 1 He was a slow learner as a child and spoke very slowly.
- 2 His Noble Prize money went to his ex-wife as a divorce settlement.
- 3 He never received a Nobel Prize for relativity. It was actually for the photoelectric effect.
- 4 He was famous for having bad money.
- 5 He had an illegitimate daughter born in 1902.
- 6 His eyes remain in a safe box in NYC.
- 7 He could not remember names, dates and phone numbers.
- 8 He was offered the presidency of Israel which he politely declined.
- 9 The pathologist who made his body's autopsy stole his brain and kept it in a jar for 20 years.



5

# 3 QUESTIONS EVEN

# SCIENCE CANNOT ANSWER

Science is about exploring the unknown and cannot offer guarantees.

## 1 How Does Turbulence Work?

Turbulence

Everyone has gone through a flight where the pilot asks you to tighten your seat belts because of excessive turbulence, but even though it is so important to things like air safety, we just have no idea how it works.



## 2 Why Do Cats Purr?

Cats

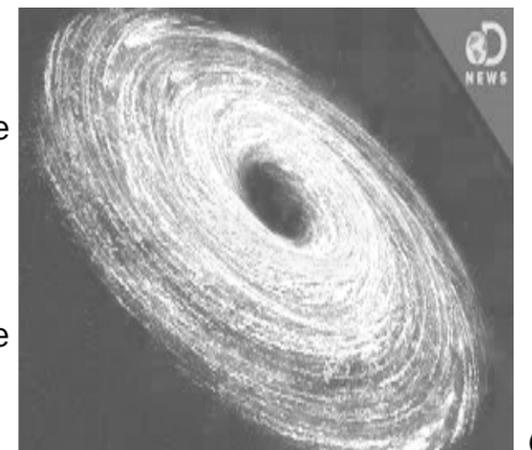
We've shown before that cats don't always purr when they're happy, but the mystery goes way deeper than that. There is no purring organ in the throat of a cat, and even though extensive research has been done on the function itself, the exact origin of the function in the anatomy of cats is still unknown.



## 3 What Causes Hypnic Jerks?

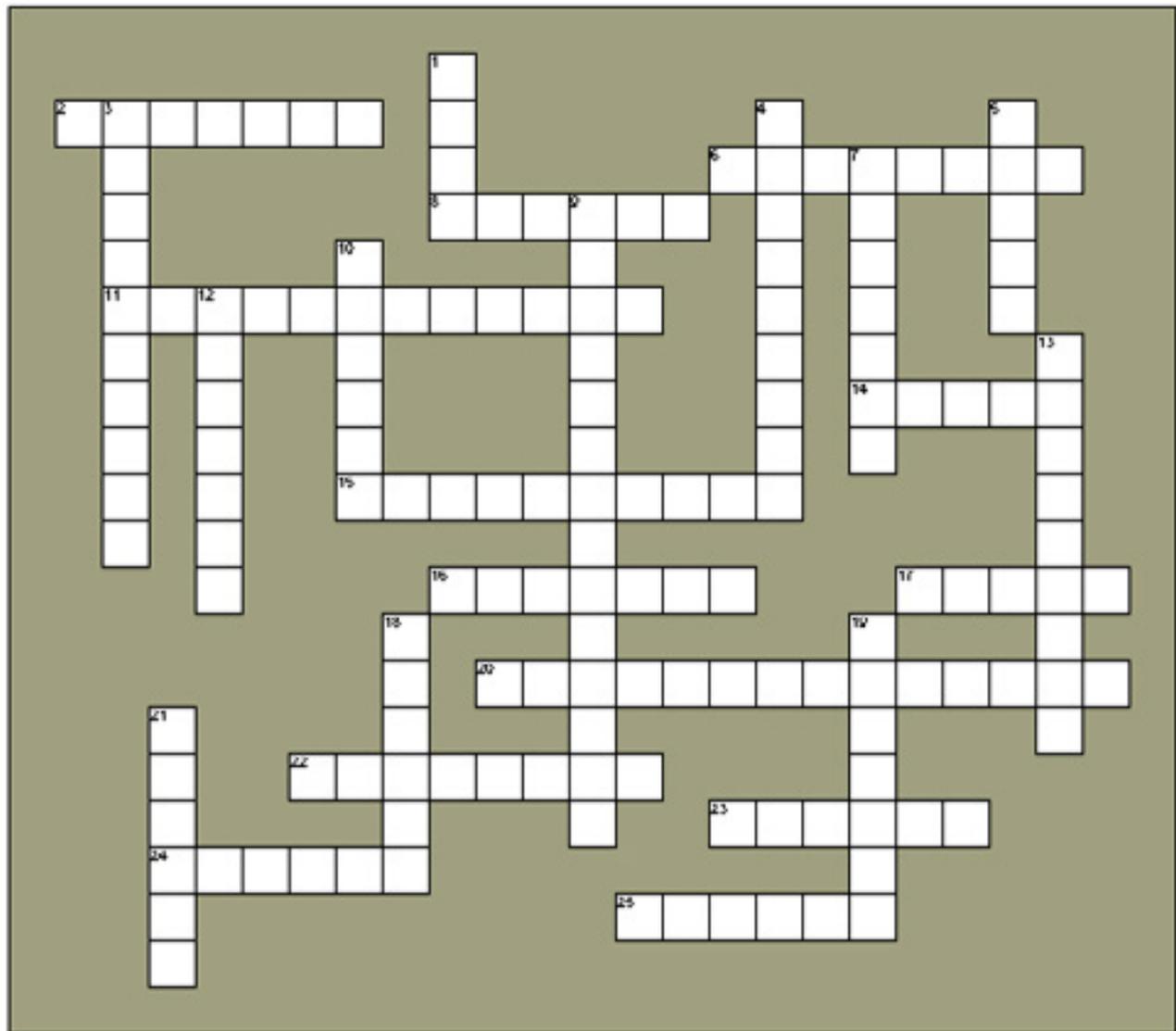
Often when we are about to fall asleep, we experience a kind of a falling sensation which causes us to wake up with a start, the sensation is known as a hypnic jerk..

Other theories suggest that it happens because of the slowing down of the body's processes when you fall asleep, but again, there are no scientific studies to support that claim either.



6

# Science



## Across

2. A force of attraction between two masses.
6. Developed the theory of relativity.
8. The three bones in the middle ear: malleus, incus and \_\_\_\_\_.
11. Force equals mass times \_\_\_\_\_.
14. Monochromatic light
15. Number of hours for earth to rotate around its axis.
16. Current times resistance equals \_\_\_\_\_.
17. Substance that has a larger volume as a solid than as a liquid.
20. A basic science that deals with heat, temperature, and energy.
22. Electric fields generate \_\_\_\_\_ fields.
23. Positively charged particle of an atom.
24. A "bundle" of light energy.
25. Light sensitive lining of the inner eyeball.

## Down

1. Energy equals the speed of light squared times \_\_\_\_\_.
3. A prism demonstrates this principle.
4. Astronomical distances are commonly measured in this unit.
5. Larger of two bones of the lower leg.
7. Shoulder blade.
9. Green plants use energy from light in this process.
10. Your mass is the same on the earth and the moon, but your \_\_\_\_\_ is not.
12. Dense fluffy cloud with flat bottom and rounded top.
13. Number of oscillations of a wave per unit of time.
18. Water is composed of hydrogen and \_\_\_\_\_.
19. Tendency of a mass to resist acceleration.
21. Canine tooth.

*Who ever finishes first can take a chocolate from Kritika Goyal*