

# SCIENCE CENTRE NEWS LETTER

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## SCIENCE CENTRE

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### WHAT'S NEW IN SCIENCE

#### Milky way's fastest stars came from another galaxy

Astronomers have shown that the fastest-moving stars in our galaxy, known as hyper-velocity stars, are in fact runaways from a much smaller galaxy in orbit around our own. These stellar sprinters originated in the LMC, a dwarf galaxy in orbit around the Milky Way, the findings showed. These fast-moving stars were able to escape their original home when the explosion of one star in a binary system caused the other to fly off with such speed that it was able to escape the gravity of the LMC and get absorbed into the Milky Way, the study said. Astronomers first thought that the hyper-velocity stars, which are large blue stars, may have been expelled from the centre of the Milky Way by a super-massive black hole. Other scenarios involving disintegrating dwarf galaxies or chaotic star clusters can also account for the speeds of these stars but all three mechanisms fail to explain why they are only found in a certain part of the sky. To date, roughly 20 hyper-velocity stars have been observed, mostly in the northern hemisphere,



although it is possible that there are many more that can only be observed in the southern hemisphere. "The hyper-velocity stars are mostly found in the Leo and Sextans constellations we wondered why that is the case," Douglas Boubert from Institute of Astronomy University of Cambridge added. An alternative explanation to the origin of hyper-velocity stars is that they are runaways from a binary system. In binary system, the closer the two stars are, the faster they orbit one another. If one star explodes as a supernova, it can break up the binary and the remaining star flies off at the speed it was orbiting. The escaping star is known as a runaway. "These stars have just jumped from an express train no wonder they are fast," coauthor Rob Izzard from the Institute of Astronomy said. "This also explains their position in the sky, because the fastest runaway are ejected along the orbit of the LMC towards the constellations of Leo and Sextans," Izzard added.

Courtesy : Vidyakunj Secondary & Higher Secondary School.

### SCIENTIST OF THE MONTH

#### Bimal Kumar Bachhawat

Bimal Kumar Bachhawat was born on August 16, 1925 at Kolkata in West Bengal. He got his B.Sc, M.Sc in 1946, 1948 respectively, from the Kolkata University. He did his Ph.D from the Illinois University, U.S.A. in 1953 and his postdoctoral research from the University of Pennsylvania. Bimal Kumar Bachhawat helped in understanding the metabolism of branched-chain amino acids. He developed various analytical foods for biochemical analysis with the help of lectins. He demonstrated for the first time in India, how a number of inborn errors in metabolism led to mental



retardation, and were related to abnormal metabolism in glycol-conjugate. Dr. Bachhawat received the Shanti Swarup Bhatnagar Prize in 1962; the J.C. Bose Award in 1980; the Saran Memorial Lectureship in 1986; J.B. Chatterjee Gold Medal in 1986; the R.D. Birla Samarak Kosh Award in 1986; the Padma Bhushan in 1990. He was the President of the Society for Biological Chemists, India and also of the Neurological Society of India. Bimal Kumar Bachhawat died on September 23, 1996.

Courtesy : Vidyakunj Secondary & Higher Secondary School.



### Timings

Tuesday to Friday  
9.30 am to 4.30 pm

Saturday - Sunday  
& Public Holidays  
11.00 am to 6.30 pm

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## SCIENCE FACTS AUGUST 2017

2 August 1861	Indian Scientist Sir Prafull chandra Ray was born on this day.
4 August 1956	India's first Nuclear Reactor "Apsara" went critical at 'Trombay' (BARC Bhabha Atomic Research Centre).
5 August 1930	Neil Alden Armstrong (First person to set foot upon the moon) was born on this day.
6 August 1881	Prof. Alexander Fleming (discoverer of Penicillin) was born on this day.
7 August 1976	"Viking 2" Spacecraft of America entered into Orbit of Mars.
8 August 1901	Ernest Lawrence (inventor of Cyclotron) was born on this day.
12 August	International Youth Day. (by U.N.)
12 August 1919	Well known Indian Scientist Dr.Vikaram Ambalal Sarabhai was born on this day.
14 August 1888	Johan Logie Baird (inventor of colour Television) was born on this day.
17 August 1870	Frederick Russell (inventor of first successful typhoid fever vaccine) was born on this day
21 August 1754	William Murdoch (inventor of Gas lighting) was born on this day.
22 August 1920	Denten Cooley (who performed the first artificial heart transplant) was born on this day.
25 August 1989	Space Craft 'Voyager 2's closest approach to Planet Neptune was noted on this day.
26 August 1906	Albert Sabin (inventor of oral polio vaccine) was born on this day
29 August	International Day against Nuclear Tests. (by U.N.)

U. N. : United Nations

WHO : World Health Organization

Quiz Answers: 1) a 2) a 3) a 4) b 5) c



## KNOW THE EXHIBITS AT FUN SCIENCE GALLERY

### Feel the Atmospheric Pressure

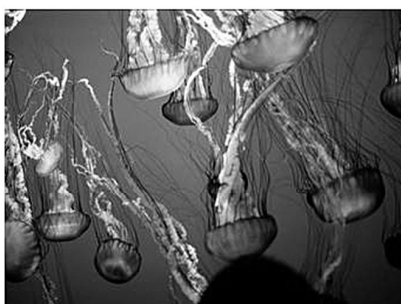
Using your forefinger, try to lift the rods within each transparent tube one by one. You will feel more weight on your fingertip for the longer tube, which suggests that longer is the air column, more is the weight of air and conversely, more is the air pressure. Atmospheric pressure is the maximum at sea level and decreases as the altitude increases. The atmospheric pressure at mean sea level is 1.013kg on every square centimeter.



## SCIENTIFIC QUESTION

### What is Jellyfish?

One of the strongest sea creatures is the jellyfish. They look like an overturned bowl and are almost entirely made of jelly. Their digestive system is under the bowl. The digestive tract ends in a tube which hangs down from the centre and has a mouth at the lower end. Tentacles which hang from the edge of the bowl are used for accumulating food and sometimes for swimming. Between the tentacles are the nerve centres and sense organs. The bowl of the jellyfish is made



of two thin layers of tissue with jelly-like material between them. A big jellyfish can have a bowl of nearly 4 metres in diameter and tentacles more than 30 metres long. It is the tentacle which makes a jellyfish dangerous. The long tentacles of a big jellyfish can cause serious injury to human beings. When the fish engulfs the person with its tentacles, it becomes

hard to breath and can even partially paralyse a person. The harm is done by the tentacles which are barbed and pierce the body of its prey. The barbed cells are connected to poison glands which paralyse the prey and sometimes succeed in killing the prey.



## SCIENCE QUIZ

1) In terms of Electricity, What does DC stands for?

a) Direct Current b) Direct Conductor c) Dual Current d) Dual Collector

2) What is the human body's biggest organ?

a) Skin b) Teeth c) Lungs d) Tongue

3) What is the closest Planet to the Sun?

a) Mercury b) Saturn c) Venus d) Mars

4) What substance are nails made of?

a) Melanin b) Keratin c) Calcium d) Magnetic

5) What is the Chemical symbol of Gold?

a) Cu b) Fe c) Au d) Ag

## 'SCIENCE FAIR'

Surat Municipal Corporation in collaboration with Surat Smart City Development Ltd. had Organised "Science Fair" at ground floor, Art Gallery, Science Centre, surat on 21st and 22nd July 2017. The Science Fair was Inaugurated by Hon. Mayorshri. The Theme for the science fair was "Smart City Surat" 23 schools and 120 students of Surat had displayed 34 projects in this Science Fair they prepared their projects on Pollution free city, Solid waste Management, Free from Traffic, Adequate Medical Services, Providing Other Essential Facilities and Disaster Management.



## SCIENCE PROJECT PRESENTED IN SCIENCE FAIR 21-22 JULY 2017

Surat Municipal Corporation in collaboration with Surat Smart City Development Ltd. had organized "Science Fair" at Ground Floor of Art Gallery, Science Centre Surat on 21<sup>st</sup> and 22<sup>nd</sup> July, 2017. The Theme for this science fair was "Smart City Surat" 23 Schools, participated in this science fair, Out of this, students of "Vidhyakunj" Secondary and Higher secondary School presented their Project of "Ozone as a Medicine". The detail of their project is as under: In project looking forward to produce Ozone to cure the diseases economically in present day extracting oxygen from the atmosphere and by the process of Ozonolysis, we are getting O<sub>3</sub>(Ozone) which we can use as a Medicine. The major usages of ozone are:

- 1) For water purification
- 2) Pesticide free fruits and Vegetables
- 3) To Reduce the bacteria in Kitchen and Toiletry
- 4) Medicine for small Injuries
- 5) To Reduce Problem in Breathing
- 6) For Skin Care
- 7) To remove problem of Intestine
- 8) To remove muscles problem and to cure Arthritis
- 9) To cure blood cancer, etc.

