

# SCIENCE CENTRE NEWS LETTER

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SCIENCE CENTRE

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## WHAT'S NEW IN SCIENCE

### Researcher Designed the New Virtual Reality Suits

Virtual reality Could one day incorporate all the Sences, Creating a rich and immersive experience, but existing virtual reality headsets only simulate things you can see and hear. but now, a group of engineers wants to help people "touch" virtual environments in a more natural way, and they built a wearable suit to do just that.

Designed by lucian copeland, morgan sinko and jordan brooks while they were students at the University of rochester, in New York, the suit looks Something like a bullet proof vest. Each section of the suit has a small motor in it, not unlike the one that makes a mobile phone vibrate to signal incoming messages. In addition, there are small accelerometers embedded in the suit's arms.

The vibration provide a sense of touch

when a virtual object hits that part of the body, and the accelerometers help orient the suit's limbs in space, the researchers said. When the suit is connected via a cable to a computer, it links to a virtual reality(VR) headset. The



combination of motor- tracking and accelerometers means that it doesn't matter if your arm is out of view of the camera because the program generating the virtual environment will " know" where your hand is accelerometer tells the device about how your hand is moving with that information, a virtual environment can show a tree

branch, for example, and tell the suit to vibrate in the spot where it would touch. if it were hitting your side or if you were touching it with your hand, the researcher said.

## SCIENTIST OF THE MONTH

### Ananda chakrabarty

Ananda chakrabarty was born in India on 4 April, 1938 at sainthia, west bengal. He is an Indian-American microbiologist scientist and researcher. He attended Sainthia High School, Ramkrishna Mission Vidyamandir and St. Xavier's college, Calcutta for his under graduate education. Prof. chakrabarty received Ph.D from the university of calcutta, West Bengal in 1965.

Prof. chakrabarty genetically engineered a new Species of Pseudomonas bacteria("the oil-eating bacteria") in 1971 while working for the Research and Development center at General electric company in schenectady, New york. The new microbe, which chakrabarty called"multi-Plasmid hydrocarbon-de grading Pseudomonas", could digest about two-thirds of the hydrocarbons that would be found in a typical oil spill. The bacteria drew international attention. when he applied for a patent-the first U.S. patent for a genetically modified organism. He was initially denied the patent by the U. S. patent office. It was granted by the Supreme court . Currently his lab is working on elucidating the role



of bacterial cupredoxins and cytochromes in Cancer regression and arresting cell cycle progression. In 2001, Prof chakrabarty founded a company,CDG Therapeutics, Which holds proprietary information related to five patent generated by his works at the University of Illinois at Chicago. In 2008, He was the co-founded a second bio-Pharmaceutical discovery company, Amrita Therapeutics Ltd., in Ahmadabad to develop therapies, vaccines and diagnostics effective against cancers.

He has received many awards, including the 'Scientist of the year' award in 1975 by Industrial Research organization of United states, the Distinguished Scientist Award from the United States Environmental protection Agency, the MERIT Award from NIH, the Distinguished Service Award by the U.S. Army, The Procter and Gamble Environment Biotechnology Award given by the American Society of Microbiology, The Golden Eurydice Award for contributions in Biophilosophy in 2007 and Padma shri in 2007.



### Timings

Tuesday to Friday  
9.30 am to 4.30 pm

Saturday - Sunday  
& Public Holidays  
9.30 am to 6.30 pm

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## SCIENCE FACTS APRIL 2016

1 April 1962	Decimal weight measurement system was made compulsory in India.
2 April	World Autism Awareness Day. (UN)
2 April 1618	Mathematician and Physicist, Francisco M. Grimaldi (discoverer of light diffraction) was born on this day.
3 April 1984	Indian Astronaut Mr.Rakesh Sharma traveled into Space.
7 April	World Health Day (WHO) (UN)
12 April	International Day of Human Space Flight (UN)
12 April 1961	First Russian Astronaut Yuri Gagarin traveled into Space.
16 April 1853	First Indian Steam Engine train was started from Mumbai to Thane.
16 April 1867	Wilbur Wright (co-inventor of the first manned aeroplane) was born on this day
19 April 1912	American Chemist, Glen T. Seaborg (discoverer of plutonium) was born on this day.
19 April 1971	Russia had launched world's first unmanned Space research station "Salyut-1" in Space.
19 April 1975	India entered in Space Era. "Aryabhatt" Satellite was launched from Soviet Union.
22 April	International Earth Day.
22 April 1799	Jean Poiseuille (discoverer of blood pressure) was born on this day.
23 April	World Book & Copyright Day (UNESCO)
23 April 1858	German Physicist, Max Planck (who wrote the Planck Constant) was born on this day.
25 April	World Malaria Day (WHO)
25 April 1874	The great Scientist Mr. Marconi (inventor of Radio) was born on this day.
27 April 1791	Mr. Semual Morse (inventor of Postal Service & Telegram) was born on this day.
28 April	World Day for Safety & Health at Work
30 April 1895	French Scientist Mr. Rontgen discovered X-rays.

U.N. United Nations

WHO World Health Organization

UNESCO United Nations Educational Scientific & Cultural Organization

Answer :1)B 2)A 3)C 4)B 5)C 6)B



## KNOW THE EXHIBITS AT FUN SCIENCE GALLERY

### Music in the Air

Press the switch to select the musical instrument you want to play.

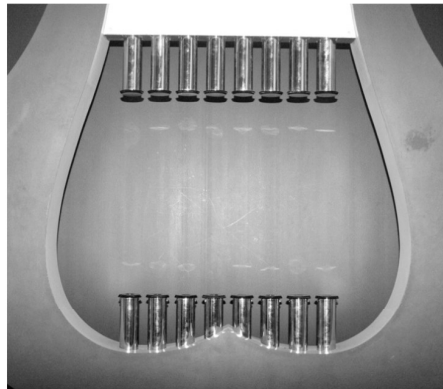
Move your hand in air over the bottom rows of pipes and listen to the musical notes your action creates.

#### How this happen?

As you move your hand between the tubes, you are actually blocking invisible rays between each pair of tubes.

An electronic control circuit

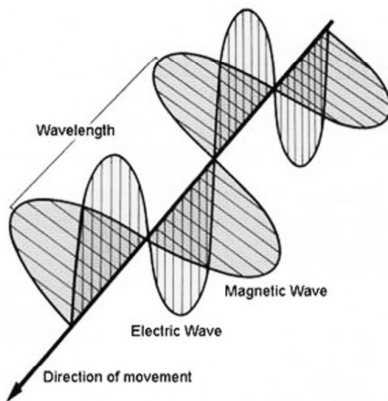
monitors the passage or blocking of the rays, and plays a digitally created note corresponding to the pair of tubes blocked by your hand.



## SCIENTIFIC QUESTION

### What is waves?

Sound and light are both forms of energy. They are very different forms of energy-Sound is made by something moving, while light is a mixture of electrical and magnetic energy. But Sound and Light are similar in that they both



travel in regular up-and-down curved patterns, called WAVES. These are similar to ripples on a pond or the waves you make if you shake a rope up and down.

In science, a wave is a traveling change, disturbance, or

Fluctuation that passes energy from one place to another. Sound can travel only by moving particles of matter, such as the atoms or molecules that make up a substance. So Sound can not exist in, or travel through, The nothingness of a Vacuum, Such as Space. Light, on the other hand, does not need matter or substance. It exists as tiny packets or parcels of energy called photons. This can travel through a substance Such as air or water, and also through a vacuum.

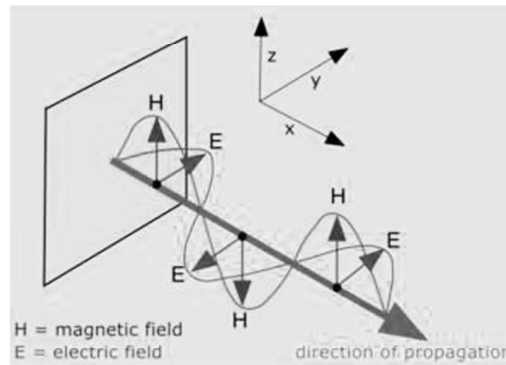
#### Features Of Waves:

- The highest Part is the peak(crest).
- The lowest Part is Trough(dip).
- The height of a wave, from

its mid point up to its peak, or from the midpoint down to its through, is The amplitudes (taller waves).

The number of waves passing a place or point in one second is called frequency of waves.

The distance along one complete wave - for example, from one peak to the next is the Wavelength.



James clerk Maxwell (1831-1879) used mathematics to explain the features of

waves. He Studied the links between electricity and magnetism. His calculation showed that electrical-magnetic waves travel at the speed of Light. So he suggested a new idea for the time-that light itself was also electromagnetic waves.

**1) Which of the following is necessary for burning (combustion)?**

(A) Nitrogen (B) Oxygen (C) Petrol (D) Carbon

**2) The three States of matter are Solid, liquid and gas**

(A) True (B) False

**3) which gas in the atmosphere protects us from harmful ultraviolet radiation?**

(A) Nitrogen (B) Oxygen (C) Ozone (D) Carbon Dioxide

**4) Who Wrote the book "The origin of Species"?**

(A) Sir Alexander Fleming (B) Charles Darwin (C) Stephen Hawking (D) Louis Pasteur

**5) Who discovered the circulation of blood?**

(A) Edward Jenner (B) Hargobind Khorana (C) William Harvey (D) Louis Pasteur

**6) The Tail of a comet always points towards the sun**

(A) True (B) False

**NIGHT SKY GAZING PROGRAMME**

Science Centre Surat had organised "Night Sky gazing" programme at Science Centre Surat on 12 and 13 March 2016 from 8:00 pm to 9:30 pm. In this programme planet Jupiter and its moons were shown through Referector Telescope to visitors. Total 243 visitors have participated in this event.



**ARTEFACTS FROM S. V. PATEL MUSEUM IN INTERNATIONAL EXHIBITION**

In collaboration of Indian Government's Ministry of Minority Affairs, Ministry of Culture and Parzor Foundation, an "International Everlasting Flame Programme" is organized at New Delhi from 19th March to 29th May, 2016. This programme was inaugurated by the Honourable Minister Shri Arun Jaitley; Ministry of Finance, Information and Broadcasting and Corporate Affairs on 19th March 2016. In this programme, an international exhibition 'Threads of Continuity: Zoroastrian Life and Culture' is exhibited in which, three artefacts from the collection of Sardar Vallabhbbhai Patel Museum is selected which is situated at Science Center Surat, and exhibited in the exhibition at New Delhi. This exhibition was inaugurated by the Honourable Minister Dr. Najma Heptulla, Ministry of Minority Affairs on 21st March, 2016. Surat Municipal Corporation takes proud on selection and exhibition of three artefacts from its 126 year old Sardar Vallbhbbhai Patel Museum.



Honourable Minister Shri Arun Jaitley, Ministry of Information and Broadcasting, Finance and Corporate Affairs inaugurating "International Everlasting Flame Programme" on 19/03/2016 at New Delhi.



Honourable Ministry Dr. Najma Heptulla, Ministry of Minority Affairs inaugurating "Threads of Continuity: Zoroastrian Life and Culture" on 21/03/2016 at New Delhi

