

SCIENCE CENTRE NEWS LETTER

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M. Thennarasan
I.A.S.
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Editor
A. M. Dube
Addi. City Eng.(Civil)

Sub Editor
Bhamini Mahida
Chief Curator
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P. T. Science College



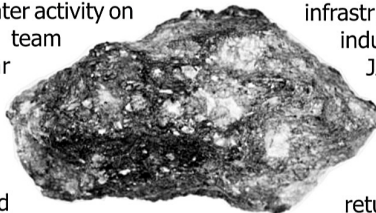
SCIENCE CENTRE

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WHAT'S NEW IN SCIENCE

Long suspected theory about the moon holds water

A team of Japanese scientists led by Masahiro Kayama of Tohoku University's Frontier Research Institute for Inter disciplinary Sciences, has discovered a mineral known as moganite in a lunar meteorite found in a hot desert in northwest Africa. This is significant because moganite is a mineral that requires water to form, reinforcing the belief that water exists on the Moon. "Moganite is a crystal of silicon dioxide and is similar to quartz. It forms on Earth as a precipitate when alkaline water including SiO_2 is evaporated under high pressure conditions," says Kayama. "The existence of moganite strongly implies that there is water activity on the Moon." Kayama and his team analyzed 13 of the lunar meteorites using sophisticated methods to determine chemical compositions and structures of their minerals. These included electron microscopy for high-magnification, and micro-Raman spectroscopy to determine the structure of the minerals based on their atomic vibration. This is the first time that moganite has been detected in lunar rocks. The researchers say the meteorites probably came from an area of the Moon called Procellarum Terrane, and that the moganite was formed through the process of water evaporation in strong sunlight. Kayama's working theory is that deeper under the lunar surface, protected from the sun, crystals of water ice could be abundant. In recent years, space



missions have found evidence of lunar water or ice concentrated at the poles where sunlight appears at a very narrow angle, leading to pockets of cold traps. This is the first time, however, that the scientists have found evidence of abundant water ice in the lunar subsurface at mid and lower latitudes. Kayama's team estimates that the accumulation of water in the lunar soil is about 0.6 weight percent. If they are right, future lunar explorers would have easier access to the resource, which would greatly enhance the chances of the

Moon hosting human settlement and infrastructure, and supporting a variety of industries within the next few decades. JAXA, the Japan Aerospace Exploration Agency, is said to be considering two future missions -- a lunar pole landing mission in five years to look for water resources and a sample return mission from the far-side of the Moon in ten years. In addition to testing for water in other silica minerals found, Kayama and his team also plan to study water from solar wind to the regolith soils and volcanic eruptions from the lunar mantle. "Solar wind-induced water can give us new insight into the history of sun activity, and volcanic water provides us with information of lunar evolution together with water," says Kayama, about his lab's next project. "It's all very exciting."

Courtesy :
Shree Kanchanlal Mamawala Primary School No. 88

SCIENTIST OF THE MONTH

George Joseph

George Joseph was born on August 4, 1938 at Chengannur in Kerala. He received his B.Sc. degree from Alagappachettiar College at Karaikudi in 1957, M.Sc. from Maharaja College in Trivandrum in 1959 and Ph.D. from the University of Bombay in 1971. A renowned physicist, Dr. Joseph was a key person in the Satellite programme of I.S.R.O. The first satellite system 'Aryabhata' had a unique detector system designed by him, for detecting solar neutrons. He was responsible for designing and fabrication of the remote sensing payloads for the I.R.S.S (Indian Remote Sensing Satellite) series and



the V.H.R.R.(Very High Resolution Radiometer) meteorological payload for various Indian National Satellite System. The excellent output from these, i.e. high quality image and excellent picture has established India amongst the few countries with earth observation capability from space. Dr Joseph received the National Academy of Science Award for Instrumentation in 1968, Om Prakash Bhasin Foundation Award for Science and Technology in 1987 and the Padma Bhushan in 1999.

Courtesy :
Shree Kanchanlal Mamawala Primary School No. 88



Timings

Tuesday to Friday
9.30 am to 4.30 pm

Saturday - Sunday
& Public Holidays
11.00 am to 6.30 pm

Address

Science Centre
City Light Road,
Surat - 395 007

Contact

0261 - 2255947
+91 97277 40807

Fax No.
91-261-2255946

E mail
sciencecentre@suratmunicipal.org

Web Site
www.suratmunicipal.gov.in



SCIENCE FACTS AUGUST 2018

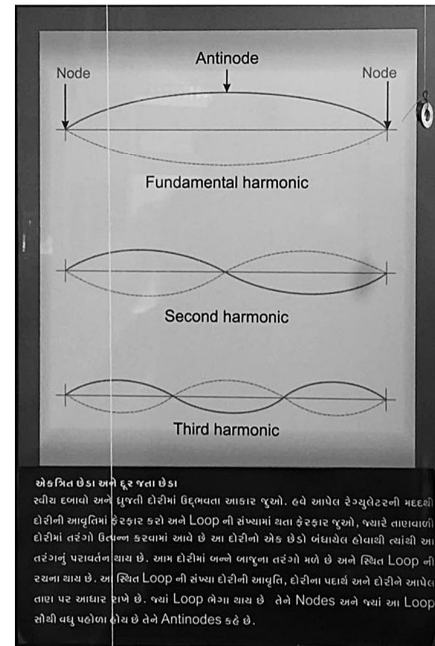
2 August 1861	Indian Scientist Sir Prafullchandra Ray was born.
4 August 1956	India's first Nuclear Reactor "Apsara" was established at ' Trombay' (BARC-Bhabha Atomic Research Centre)
5 August 1930	Neil Alden Armstrong (First person to set foot upon the moon) was born.
6 August 1881	Prof. Alexander Fleming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

Ans:- 1. b 2. c 3. a 4. a 5. a

KNOW THE EXHIBIT AT FUN SCIENCE GALLERY

Nodes and Antinodes

Press the switch and watch the loops formed in the vibrating string. Now increase or decrease the frequency of string's vibration with the help of regulator. Observe that number of loops formed in the string increases with the increase in frequency. Waves travelling along the stretched string get reflected at the end points. The ongoing wave and the returning wave interact and give an impression of a stationary loop formed on the string. The number of loops depends on the frequency of vibration, material of the string and tension applied on the string. The intersecting points on the loop are called nodes and the widest regions of the loops are called antinodes. Sound waves also form such stationary waves on reflection.



SCIENTIFIC QUESTION

How Far is the Closest Star?

The simple answer is that the Sun is the closest star to Earth, about 93 million miles away. Outside of our Sun, our system's nearest neighbour is Alpha Centauri. This isn't a single star, it's actually a triple-star system three stars bound together by gravity. Alpha Centauri A and B are two bright, closely orbiting stars with a distant, dim companion named Proxima Centauri. The inner binary appears to the unaided eye as a single star, the third brightest in the night sky, but it lies 4.37 light years from the Sun. Faint Proxima Centauri is the one that claims the honor of being our true nearest stellar neighbour at only 4.24 light years away. It's difficult to conceptualize such vast distances, but a popular analogy sets the Sun at the size of a grapefruit. If you wanted to get from

your grapefruit-sized Sun to a grapefruit-sized Alpha Centauri system, you would have to travel about 2,500 miles. There's a plan in



the works, funded by Breakthrough Starshot, to send tiny smartphone-size probes to the Alpha Centauri system. It would be a one-way trip

that would take these lightsail-powered spacecraft 20 years. Why go such a long way? For one, astronomers have found a planet orbiting Proxima Centauri. While it's unlikely it would be habitable, that would be a fun and informative planet to visit. But Proxima Centauri is only currently the closest star. The Sun, the Alpha Centauri system, and other nearby stars all move around the Milky Way over time, and they approach and pass each other as they travel. In another 10,000 years or so, the closest star will be something else.

Science Quiz

1. Which one of the following is Seldom responsible for Cracking of rocks?

a) Covalent bond, b) Hydrogen bond, c) Metallic bond, d) Ionic bond.

2. In which Solvent is common salt is Soluble?

a) Ether, b) Benzene, c) Water, d) Kerosene.

3. Where are Mitosis found?

a) Vegetative Cell, b) Epidermal Cell, c) Reproductive Cell, d) Dead Cell.

4. What is the main component of glass?

a) The sand, b) Oxides alcalins, c) Tin, d) Silicon.

5. Wilhelm Rontgen discovered _____ in 1895.

a) The x-ray, b) Tuber culosis, c) Relativity, d) Ultrasound .

Science Project

Surat Municipal Corporation in collaboration with Surat Smart city Development Ltd. had organized "Science Fair" at ground floor of Art Gallery, Science Centre, Surat from 21st to 22nd July 2017. St. Xavier's High School presented their project on **Floating Bridge**.

Principle:- Make a bridge on the river by using Plastic bottle.

Function Method:- Using the Plastic bottle for the bridge, we can mange the plastic and reuse the plastic. Thus, The problem of Traffic in the city can be tackled by the help of plastic. The density of the plastic is less than the water. So that it float on the water and there is no danger of drowning.

Advantages:-

1. Traffic problems can be tacked, 2. Time and Energy of the people can be saved, 3. If a bridge breaks in any situation, the plastic floats on water. So, the fear of a person's drowning does not arise, 4. The management of plastic waste can be made in the megacities like Mumbai and Surat, 5. Internal transportation arrangement is made possible between rivers by the help of plastic.



SCIENCE CENTRE

Science Centre forms the main part of the entire complex; it displays thematic galleries in the field of Science and Technology. The ground floor of Science Centre showcases 3D Theatre and Souvenir Shop. The first floor of Science Centre showcases Planetarium, Fun Science Gallery and Power of Play Gallery and second floor of Science Centre showcases Diamond Gallery, whereas Entering into Space, Textile Gallery, Cosmos Gallery and Polar Science Gallery are under development.

3d Show	Tuesday to Friday (Time)	Saturday, Sunday & Holidays (Time)
English	09:15, 11:20, 12:00, 02:40, 04:00	11:20, 12:00, 02:40, 04:00
Hindi	10:00, 10:40, 12:40, 01:20, 02:00, 03:20	12:40, 01:20, 02:00, 03:20, 04:40, 05:20, 06:00
Science Centre + Planetarium + Museum + Diamond Gallery		
Above 18 Years	Rs. 100	
3 Years to 18 Years	Rs. 65	
Science Centre + Museum + Diamond Gallery		Planetarium
Above 18 Years	Rs. 60	
3 Years to 18 Years	Rs. 40	
Science Centre + Planetarium + Museum + Diamond Gallery + 3D Show		Tuesday to Friday
Above 18 Years	Rs. 120	
3 Years to 18 Years	Rs. 80	
Planetarium		Saturday, Sunday & Public Holidays
Above 18 Years	Rs. 50	
3 Years to 18 Years	Rs. 40	
3D Show		
Above 18 Years	Rs. 60	
3 Years to 18 Years	Rs. 40	