

SCIENCE CENTRE NEWS LETTER

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SCIENCE CENTRE

Volume 1, Issue 5

WHAT'S NEW IN SCIENCE

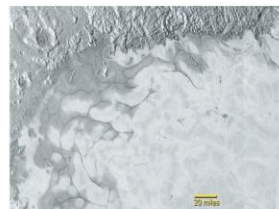
New Horizons says goodbye to Pluto

Sayonara, Pluto. This image was captured by NASA's New Horizons spacecraft from 1.25 million miles away on July 15th, immediately following its flyby of the dwarf Planet. Pluto appears in silhouette, backlit by the Sun, while the white outline is the haze in



Pluto's atmosphere, which has been revealed by New Horizons to be several times thicker than previously estimated. In fact, there are two distinct levels of haze visible in the new images, one at 30 miles above Pluto's surface and another at 50 miles above.

Beamed across billions of miles and a very narrow bandwidth, the latest images from the Pluto flyby were worth waiting for. One reveals the view from New Horizons after it sped past Pluto and looked back to study its atmosphere. "This is our equivalent on New Horizons of the Apollo 11 earthrise," says New Horizons' Alan Stern. It is both beautiful and mysterious. Backlighting by the Sun shows that Pluto's atmosphere is about four times taller than scientists thought was possible. It has two distinct layers of haze—one at 30 miles above the surface, another at 50 miles. The haze extends to about 80 miles out, whereas scientists previously thought that it



could only extend to 20 miles.

The image shows an area that's about 250 miles across. It shows evidence of deep and extensive erosion, while the top shows evidence of a viscous ice flow filling in a crater. "The plains seem to have moved and surrounded the mountains," said McKinnon. "To see evidence of recent geological activity is a dream come true."

Courtesy : -C.C.Shah, Sarvajank English High, School.

SCIENTIST OF THE MONTH

C.R.Rao

Calyampudi Radhakrishna Rao, FRS known as C.R.Rao born on 10 September, 1920 is an Indian born, naturalized American, mathematician and statistician. He is currently Professor emeritus at Penn State University and Research Professor at the University at Buffalo. Rao has been honoured by numerous colloquia, honorary degrees, and festschrifts and was awarded the US National Medal of Science in 2002. The American Statistical Association has described him as "a living legend whose



work has influenced not just Statistics, but has had far reaching implications for fields as varied as economics, genetics, anthropology, geology, national planning, demography, biometry, and medicine." The Times of India listed Rao as one of the top 10 Indian Scientists of all time. Dr. Rao is also a Senior policy and Statistics advisor for the Indian Heart Association non-profit focused on raising South Asian cardiovascular disease awareness.

Rao worked at the Indian Statistical Institute and the Anthropological Museum in Cambridge



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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before acquiring a Ph.D degree at King's College in Cambridge University under R.A.Fisher in 1948, to which he added a Sc.D. degree, also from Cambridge, in 1965. He held several important positions, as the Director of the Indian Statistical Institute, Jawaharlal Nehru Professor and National Professor in India, University Professor at the University of Pittsburgh and Eberly Professor and chair of Statistics and Director of the Centre for Multivariate Analysis at the Pennsylvania State University. As head and later Director of the Research and Analysis at the Pennsylvania State University. As Head and later Director of the Research and Training School at the Indian Statistical Institute for a period of over 40 years, Rao developed research and training programs and produced several leaders in the field of Mathematics. On the basis of Dr. Rao's recommendation, the ASI (The Asian Statistical Institute) now known as Statistical Institute for Asia and Pacific was established in Tokyo to provide training to Statisticians working in government and industrial organizations.

Among his best-known discoveries are the Cramer-Rao bound and the Rao-Blackwell theorem both related to the quality of estimators. Other areas he worked in include multivariate analysis, estimation theory, and differential geometry. His other contributions include the Fisher-Rao Theorem, Rao distance, and orthogonal arrays. He is the author of 14 books and has published over 400 journal publications.

Courtesy : -C.C.Shah. Sarvajani English High, School.

SCIENCE FACTS SEPTEMBER 2015

5 th Sep 1962	India's first president Dr. Sarvapalli Radhakrishnan Was born on this day. (" Teacher's Day ")
8 th Sep	" International Literacy Day ". (UN)
10 th Sep 1869	Reverend Jon Scobie invented First autorickshaw in Japan.
10 th Sep 1892	Arthur Holly Compton was born on this day.
12 th Sep 1992	Mae Jemison , first black woman who went into the Space.
14 th Sep 1959	Russian first Spacecraft " Luna-2 " reached at the surface of the moon.
15 th Sep 1830	World's first inter city passenger railway started between Liverpool and Manchester .
15 th Sep 1916	First Tank ever used in Combat by British Army, during battle of the " Somme ".
16 th Sep	" International Day for the preservation of the Ozone Layer ".
21 st Sep	" International Day of Peace "(UN).
22 nd Sep 1791	Michael Faraday (Discoverer of electromagnetic induction) was born on this day.
23 rd Sep	Winter equinox : On this day, Day and night becomes equal on the earth.
23 rd Sep 1901	Enrico Alberto Fermi was born on this day.
27 th Sep	" World Heart Day ". (WHO)
28 th Sep	" World Rabies Day ". (WHO)

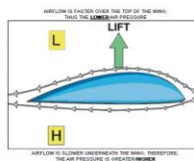
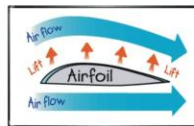
Science Quiz Answers : (1) B, (2) C, (3) C, (4) A, (5) A, (6) B

KNOW THE EXHIBITS AT FUN SCIENCE GALLERY

AERODYNAMIC LIFT

Aerofoil can be any part of an aircraft which is designed to produce lift. It can be wing, tail or a fuel tank portion which can act as an aerofoil.

This is a cross section of aircraft wing but it can be a part of tail or propeller because all these parts have essentially same shape. Now press the switch, the air is directed towards



aerofoil. The aerofoil lifts considerably.

What is the Principle behind this?

Lift is the aerodynamic force acting on the object perpendicular to the direction of airflow. Although any inclined surface develops lift but aerofoil develops maximum

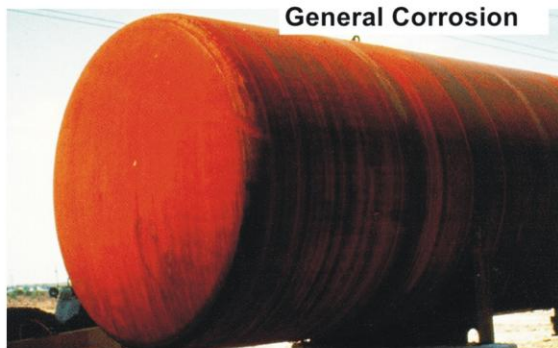
SCIENTIFIC QUESTION

what is Corrosion?

Corrosion is a process through which metals in manufactured states return to their natural oxidation states. This process is a reduction-oxidation reaction in which the metal is being oxidized by its surroundings, often the oxygen in air. This reaction is both spontaneous and electrochemically favored. Corrosion is essentially the creation of voltaic, or galvanic, cells where the metal in question acts as an anode and generally deteriorates or loses functional stability.

How it occurs? Corrosion can occur in two general ways; over the entire surface of the metal (Generalized Corrosion), or in local spots or areas (Localized Corrosion).

Generalized Corrosion: Typically never happens, aside from in acidic conditions. This uniform Corrosion over the entire surface of the metal is rare and leads to overall thinning which has little effect outside of fatigue and stress conditions.



General Corrosion



Localized Corrosion

Localized Corrosion: The most common, and most detrimental, form of localized Corrosion is pitting. Pitting is when the attack happens in the single location on the surface and creates a pit, or small cavity, in the metal. This type of Corrosion attack is hard to prevent, engineer against, and often times difficult to detect before structural failure is met due to cracking. Pipes are often compromised due to pitting.

Corrosion Prevention: Corrosion can be prevented through using multiple products and techniques including painting, sacrificial anodes, cathodic protection (electroplating), and natural products of Corrosion itself. -

Painting: The paint forms a barrier between the metal and the environment, namely moisture. - Sacrificial anodes: Utilization of a metal lower on the Galvanic Series to be attacked first, instead of the metal in use. The sacrificial anode can be replaced as needed. - Passivation: some Corrosion process will create solid metal compounds that will coat the initial site of Corrosion and prevent further Corrosion at that site.

SCIENCE QUIZ

- How does mosquito gets attracted towards humans ?
(A) Only Smell of blood (B) Only Exhaled Carbon Dioxide (c) Only Movement of body parts
- While _____ Benjamin Franklin got idea about "Electricity" ?
(A) While walking along a riverside (B) Observing rain (c) Flying a kite
- Till present how many Ice Ages men have lived through ?
(A) 3 (B) 4 (c) 5
- Which enzyme is responsible for the colour of human skin ?
(A) Melanin (B) Peptidase (c) Diacyl glycerol
- If Andromeda galaxy were visible it would be
(A) 6x larger than Moon in the night sky (B) Same as the Sun (c) Larger than the Titan (Moon of Jupiter)
- Human brain (when awake) produces enough electricity to power a _____
Watt light bulb for 24 hours.
(A) 35 (B) 40 (C) 42

NATIONAL AND INTERNATIONAL LEVEL EXHIBITIONS AT SCIENCE CENTRE SURAT:



Flag Exhibition at Science Centre Surat: Science Centre Surat had organized Flag Exhibition at Kids Space, Science Centre Surat. In this exhibition history of Indian National flag along with different types of flags of that time were displayed. There were information of more than 200 countries and their flags were displayed. This exhibition was opened for public from 11/08/2015 to 23/08/2015.



Full Dome Planetarium Film Festival & Conference: Surat Municipal Corporation in collaboration with Infovision India and Evans & Sutherland, USA has organized "Full Dome Planetarium Film Festival & Conference" for the planetarium directors, educators and engineers at Science Centre Surat, Surat, during 3rd & 4th August 2015. This conference was inaugurated by Hon. Mayorshri, Niranjan Zanzmera on 3/8/2015. During this two (2) days meet, on 3rd August 2015, there were screening of various Latest World Famous Full Dome Planetarium Shows from Indian and foreign Planetarium show producers. On 4th August 2015 there were Presentations from Directors of Planetariums and Science Centres from India. There was a special screening of full dome planetarium show for hearing impaired students.

SCIENCE CENTRE

3d Show	Tuesday to Friday (Time)	Saturday, Sunday & Holidays (Time)			
English	09:15, 11:20, 12:00, 02:40, 04:00	09:15, 11:20, 12:00, 02:40, 04:00			
Hindi	10:00, 10:40, 12:40, 01:20, 02:00, 03:20	10:00, 10:40, 12:40, 01:20, 02:00, 03:20, 04:40, 05:20, 06:00			
Science Centre + Planetarium + Museum + Diamond Gallery		Planetarium			
Above 18 Years	Rs. 100	Tuesday to Friday Saturday, Sunday & Public Holidays			
3 Years to 18 Years	Rs. 65				
Science Centre + Museum + Diamond Gallery		09:30 to 10:20	English	09:30 to 10:20	English
Above 18 Years	Rs. 60	10:30 to 11:20	Gujarati	10:30 to 11:20	Gujarati
3 Years to 18 Years	Rs. 40	11:30 to 12:20	Gujarati	11:30 to 12:20	Gujarati
Science Centre + Planetarium + Museum + Diamond Gallery + 3D Show		12:30 to 01:20	English	12:30 to 01:20	English
Above 18 Years	Rs. 120	01:30 to 02:20	Hindi	01:30 to 02:20	Hindi
3 Years to 18 Years	Rs. 80	02:30 to 03:20	hindi	02:30 to 03:20	hindi
Planetarium		03:30 to 04:20	Gujarati	03:30 to 04:20	Gujarati
Above 18 Years	Rs. 50			04:30 to 05:20	English
3 Years to 18 Years	Rs. 40			05:30 to 06:20	Gujarati
3D Show					
Above 18 Years	Rs. 60				
3 Years to 18 Years	Rs. 40				