

# SCIENCE CENTRE NEWS LETTER

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SCIENCE CENTRE

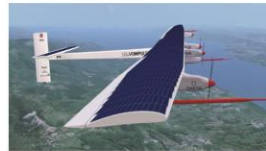
Volume 1, Issue 3

## WHAT'S NEW IN SCIENCE

### SOLAR PLANE

An aircraft in which the energy required for propulsion is collected by arrays of solar photovoltaic cells mounted on the wings is called solar plane. A solar plane uses electric motors rather than internal combustion engines with electricity derived from solar cells covering its large wings. Technique solar says its panels can supply heat load and electrical energy at one quarter of the energy.

The array has a motor drive mechanism with tracking sensor to follow the Sun to maximize the sun rays.



### Solar impulse plane begins pacific crossing.

Swiss pilot Borschberg has begun bid to cross the Pacific, from China to Hawaii in the zero fuel solar impulse aeroplane. It is likely to take five to six days of continuous flight to reach its central pacific

destination. His progress will be monitored the entire way from a control room of Monaco.

Solar impulse needs not only favourable winds to help to push it forward but also clear skies to enable its 17,000 wing-mounted photovoltaic cells to achieve peak performance.

Solar plane has taken 35,000 km journey around the world.

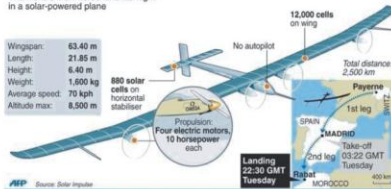
The investment opportunities for this latest science invention seems endless-buildings, vehicles, appliances, clothing etc. Can have dirt and germ free surfaces without using toxic coating or chemicals.

### Solar Impulse

The world's first intercontinental flight in a solar-powered plane

Wingspan: 63.40 m  
Length: 21.85 m  
Height: 6.40 m  
Weight: 1,600 kg  
Average speed: 70 kph  
Altitude max: 8,500 m

880 solar cells on horizontal stabiliser  
Four electric motors, 10 horsepower each  
No autopilot  
12,000 cells on wing  
Total distance: 25,000 km  
Landing: 22:30 GMT Tuesday  
Take-off: 03:22 GMT Tuesday  
Flight: 400 km



Courtesy : Sir J. J. English School, Surat.

## SCIENTIST OF THE MONTH

### Jayant Narlikar

Jayant Vishnu Narlikar was born on 19th July 1938. He is an Indian Astrophysicist.

Narlikar was born in Kohlapur, India on 19th July 1938 in a family of scholars. His father, Vishnu Vasudev Narlikar was a mathematician who served as a professor. Jayant's mother, Sumati Narlikar was a scholar of Sanskrit language. Jayant studied in Kendriya Vidyalaya, Banaras and Banaras Hindu University (12th onwards) campus, Varanasi. After that he began his studies at Fitzwilliam House, Cambridge University in England, where he was awarded B.A. in mathematics in 1959 and was Senior Wrangler. During the doctoral studies at Cambridge, he won the Smith's Prize in 1962. After receiving his PhD in 1963 under the guidance of Fred



Hoyle, he served as a Berry Ramsey Fellow at King's College in Cambridge and earned M.A. in Astronomy and Astrophysics in 1964

Narlikar is proponent of state cosmology. He developed with Sir Fred Hoyle the conformal gravity theory, commonly known as Hoyle - Narlikar Theory. It synthesizes Albert Einstein's Theory of relativity and Mach's principle. It proposes that the inertial mass of a particle is a function of the masses of all other particles, multiplied by a coupling constant, which is a function of cosmic epoch. In cosmologies based on this theory, the gravitational constant  $G$  decreases strongly with time. Narlikar is internationally known for his work in cosmology especially in championing



### 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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models alternative to the popular Big Bang model.

Narlikar has received several national and international awards and honorary doctorates. India's second highest civilian honor, "Padma Vibhushan", was awarded to him in 2004 for his research work. Prior to this, in 1965, he was conferred "Padma Bhushan". He received Maharashtra Bhushan Award for the year 2010. He is a recipient of Bhatnagar Award, M.P. Birla Award and the Prix Jules Janssen of the French astronomical society. He was honoured in 1996 by the UNESCO with the Kalinga Award.

Courtesy : Sir J. J. English School, Surat.

## SCIENCE FACTS JULY 2015

1 July	Birthday of famous Physician & Bharat Ratna Awarded Bidhan Chandra Roy which is celebrated as 'Doctor's Day' in India.
2 July 1938	Chandrakumar Naranbhai Patel (inventor of the Carbon Dioxide Laser) was born on this day.
4 July 2005	Successful collision of NASA's satellite "Deep Impact" with comet into the space was held at the distance 13.04 million km from the Earth.
5 July 1996	First Clon Mammal (Genetically identical individuals) 'Dolly' (a sheep) was born on this day.
5 July 2014 (First Saturday of July)	International Cooperative Day (by U.N.)
6 July 1906	Daulat Singh Kothari (well known Indian physicist) was born on this day.
6 July 1885	Vaccine for Rabies first time used on human on this day.
11 July	World Population Day. (by U.N.)
16 July 1945	The first detonation with code name "Trinity" conducted by United States at "Los Alamesh" was done on this day. This date is known as the beginning of Atomic Age.
16 July 1969	Successful launching of "Apollo 11" was done with the help of "Saturn V" rocket from Kennedy Space Center at Florida.
18 July	Nelson Mandela International Day for freedom, justice and democracy. (by U.N.)
18 July 1980	Launching of Indian satellite "Rohini RS-1" into the Space.
19 July 1814	Samuel Colt (inventor of Revolver) was born on this day.
24 July 1969	Successful landing of "Appolo-11" in the pacific Ocean.
25 July 1978	"Louise Joy Brown" the world's first successful Test Tube Baby was born in Great Britain.
25 July 2014 (Last Friday of July)	14th Annual System Administrator Appreciation Day. (Also known as Sysadmin Day).
	U. N.: United Nations

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

## KNOW THE EXHIBITS AT FUN SCIENCE GALLERY

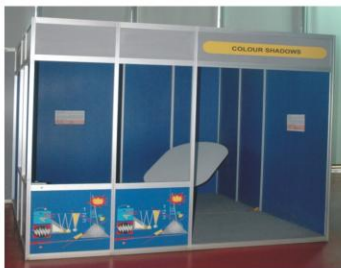
### Colour Shadow

Stand in front of the screen and watch your shadow in colours, the shadows are Cyan, Magenta and Yellow.

How do you get them ?

your body casts shadows in three different places for three lights.

you get a shadow in cyan where your body blocks the red light.



you get a shadow in Magenta where your body blocks the green light.

you get a shadow in yellow where your body blocked the blue light.

The rest of the screen is white as all three primary colours mix there.

Red + Green + Blue	= White
Red + Green	= Yellow
Red + Blue	= Magenta
Green + Blue	= Cyan

## SCIENTIFIC QUESTION

### How RADAR works ?

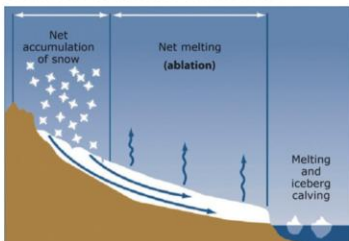


The word 'RADAR' is an abbreviated form of the name 'Radio Detection and Ranging'. RADAR is now used everywhere at airports, missile bases, space centres for following and tracking satellites and on ships and aircraft for automatic navigation. A simple form of radar is used by police to detect speeding vehicles.

We have all at one time or another heard the echo of our own voice. An echo is caused by sound waves being bounced back from a solid obstacle, rather like a rubber ball bouncing off a wall. The same phenomenon happens to radio waves which are sent out by a powerful transmitter. When the waves collide with a solid object they bounce back and can be picked up by a receiving set which is usually located at the

same place as the transmitter. Since the speed of these waves is known, we can tell how far away the obstacle is by calculating how long the waves take to cover the distance. This is how radar works.

### How is Glacier formed?



Snow that falls on low ground does not lie for long and soon melts away in the first warmth of early spring. On higher ground snow remains for a longer time but even there it is usually all melted away by May, but there are places where even the summer sunshine cannot banish the snow. This is on mountains like the Alps at height of more than 3,000 meters.

This height is known to

geographers as the snow line or the limit of persistent snow.

It varies according to location on the globe in the tropics, for example, the snowline is much higher at about 5,500 meters and in the polar regions, it is practically at sea-level.

If all the snow that falls on the earth were to stay on the ground winter after winter. All the highest mountain tops would be covered many times over, but snow only stays on valleys and hollowed-out mountain sides to form snow fields.

When snow falls it is light and feathery. A piece of snow of the type measuring a cubic meter weighs about 75 kg., but as the

snow heaps up on the ground its weight causes the bottom layers to freeze in to a hard glassy mass and the weight of a cubic meter rises to about 900 kg. The upper slopes of the world mountain ranges are covered in these masses of snow. Once it finds an outlet this frozen snow begins to move slowly like a gigantic river of ice and a glacier is born.



Courtesy : Sir J. J. English School, Surat.

## SCIENCE QUIZ

**1. Venus, Neptune and Mars are named after :**

- A. Roman gods                      B. Astronomers                      C. Egyptian pharaohs

**2. Yuri Gagarin was the first man :**

- A. On the moon                      B. To go into space                      C. To drive his space ship into a satellite

**3. You can get a friction burn from :**

- A. A candle flame                      B. Boiling water                      C. Sliding down a rope

**4. Ears also control your sense of :**

- A. Balance                      B. Taste                      C. Smell

**5. One tree filter how much pollutants from the air each year ?**

- A. 70 pounds of pollutants                      B. 80 pounds of pollutants                      C. 60 pounds of pollutants

**6. What is the name of the phobia that involves an abnormal fear of spiders ?**

- A. Arachnophobia                      B. Hydrophobia                      C. Phobophobia

Courtesy : Sir J. J. English School, Surat.

## NATIONAL AND INTERNATIONAL LEVEL EXHIBITIONS AT SCIENCE CENTRE SURAT:



A National Exhibition 'Magnificent Heritage of India as seen by the Danniels' in collaboration with Victoria Memorial Hall, Kolkata at Ground floor of Art Gallery, Science Centre Surat and Surat Municipal Corporation in collaboration with Indira Gandhi National Centre of Arts, New Delhi has organized an International Exhibition 'Africans in India: A rediscovery' prepared by Schomburg Centre for Research in Black Culture, New York Public Library, New York,

USA at first floor of Art Gallery, Science Centre Surat. The exhibitions were inaugurated by Hon'ble Mayor, Shri Niranjan Zanzmera. The exhibitions will be on display at the Art Gallery, Science Centre, Surat from 25th June, 2015 to 10th July, 2015.



## 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 Fun Science Exhibits and Second floor of Science Centre showcases Diamond Gallery where as Entering into space, Textile Gallery, Power of Play 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	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	
<b>Science Centre + Planetarium + Museum + Diamond Gallery</b>		<b>Planetarium</b>	
Above 18 Years	Rs. 100	<b>Tuesday to Friday</b>	<b>Saturday, Sunday &amp; Public Holidays</b>
3 Years to 18 Years	Rs. 65		
<b>Science Centre + Museum + Diamond Gallery</b>		09:30 to 10:20	English
Above 18 Years	Rs. 60	10:30 to 11:20	Gujarati
3 Years to 18 Years	Rs. 40	11:30 to 12:20	Gujarati
<b>Science Centre + Planetarium + Museum + Diamond Gallery + 3D Show</b>		12:30 to 01:20	English
Above 18 Years	Rs. 120	01:30 to 02:20	Hindi
3 Years to 18 Years	Rs. 80	02:30 to 03:20	hindi
<b>Planetarium</b>		03:30 to 04:20	Gujarati
Above 18 Years	Rs. 50		04:30 to 05:20
3 Years to 18 Years	Rs. 40		05:30 to 06:20
<b>3D Show</b>			
Above 18 Years	Rs. 60		
3 Years to 18 Years	Rs. 40		