SCIENCE CENTRE NEWS LETTER

November 2017
Issue 31

SCIENCE CENTRE

Volume 3, Issue 07

WHAT'S NEW IN SCIENCE

How to watch an eclipse safely?

Everyone had plan to view skyward when the solar eclipse swiped across the United State on 21st August, 2017. Everyone should have the proper protective eyewear, or risk would of becoming blind. According to NASA, only eclipse glasses that have a certification with "ISO 12312-2 international standard" are safe for use. Other option are number 14 welder's glass, or making a pinhole projector that allows a user to project the image of the Sun on paper or cardboard. But with the Great American Eclipse's shadow had set to envelop the entire nation, educating more than 300 million people in its path was a tall order. The US Fire Administration had warned of scams, such as counterfeit glasses being promoted as suitable for an eclipse when they are not. Also, US wholesalers make legitimate eclipse glasses, some sold out well over a week ahead of the event. "The dangers of looking at the Sun are real and serious" said Vincent Jerome Giovinazzo, director of ophthalmology at Staten Island University Hospital, Northwell Health. The damage can really be permanent. Many may recall a childhood experiment of using a magnifying glass to focus sunlight on a leaf or a sheet of paper and set it on fire. "The same thing can happen to your eyes", said Giovinazzo. Jules Winokur, an ophthalmologist at Lenox Hill Hospital in New York, has seen the damage in patients who stared at the sun. "They get a kind of macular degeneration where they are burning into their retina and they can lose vision and it can be permanent ", he told . "You can be left with a scar from where you were staring at the Sun and that can be right in the center of your vision". Most people don't want to look at the Sun because it hurt. But during an eclipse, the pain and discomfort are not there. "It's important to only watch the screen, not the Sun through the pinhole- it is not safe".

Courtesy : Nand Shankar Tulja Shankar Mehta School No. 124

SCIENTIST OF THE MONTH

Birbal Sahni

Birbal Sahni was born on November 14, 1891 in Bhera, Shahpur District of Punjab. He did his B.Sc. from Punjab University in 1914, his D.Sc. from University of London in the year 1919 & Sc.D. from Cambridge University in the year 1929.

In 1919, he briefly worked in Munich with the German plant morphologist Karl Ritter Von Goebel. Sahni returned to India and served as Professor of Botany at Banaras Hindu University, Varanasi and Punjab University for a year. He was appointed the first Professor and Head of the Botany Department of the Lucknow University in 1921, a position he retained until his death. Professor Birbal Sahni contributed immensely in the field of plant microfossils and mega fossils in assigning their relative position with the Geological Time Scale. He revised and adopted Lawson's Textbook of Botany for Indian students. In the year 1945, Numismatic Society to India published his memoir, 'Technique of Casting Coins in Ancient India'. He also edited the magazine, 'Lucknow University Studies'.

He was elected a fellow of the Royal Society of London in 1936, the highest British Scientific honour, awarded for the first time to an Indian botanist. He received the Sunbury Hardyman Research Prize in Cambridge in 1929, the Barclay Medal by Asiatic Society of Bengal in 1936, Sir R.C. Reddy National Prize, and the Nelson Wright Medal in 1944. Maulana Abdul Kalam Azad, Minister of education in 1947 offered him the post of Secretary to the Ministry of Education. He was the founder and director of the Birbal Sahni Institute of Palaeobotany. He died on April 10, 1949 at Lucknow due to Heart attack.

Courtesy : Nand Shankar Tulja Shankar Mehta School No. 124

Published by
M. Thennarasan
I.A.S.
Municipal
Commissioner

Editor
A. G. Khatiwala
Add. City Engineer
(Civil)

Sub Editor
Bhamini Mahida
Chief Curator

Divyesh Gameti
Curator (Science)

Co-ordinator
Dr. Pruthul Desai
Principal
P. T. Science College

SCIENCE FACTS NOVEMBER 2017

Aviation Month, Good Nutrition Month, National Diabetes Awareness Month

3rd Nov 1957	Soviet Union launched an artificial Earth Satellite "Sputnik-2" which was the first satellite to carry a living organism i.e. A dog named 'Laika -1'.
3rd Nov 1960	America launched "Explorer 8" satellite into the space to discover atmospheric Composition of the Ionosphere.
5th Nov 1855	French Meteorologist Leon Teisserenc de Bort (Discoverer of Stratosphere) was born.
6th November	International Day for preventing the Exploitation of the Environment in war and Armed conflict. (Recognised by U.N.)
7th Nov 1867	French Scientist Mary Curie (Discoverer of Radium) was born.
7th Nov 1888	Indian Famous Scientist Chandrashekhar Raman (Discoverer of Raman Effect) was born.
8th Nov 1922	South African Surgeon Christian Bernard (Who made first successful Heart Transplant) was born.
9th Nov 1801	Gail Borden (Father of Modern Dairy Industry) was born.
9th Nov 1897	British Chemist Ronald G.W. (Inventor of Flash Photolysis Methodology) was born.
10th November	World Science Day for Peace & Development (by UNESCO)
12th Nov 1896	Dr. Salim Ali (Internationally honoured Indian Ornithologist known as "Birdman of India") was born.
13th Nov 1893	American Bio-chemist Adverd A Doicy (Inventor of process to make Vitamin K1) was born.
14th November	World Diabetes Day [by WHO]
14th Nov 1776	Henri Dutrochet (discoverer of process of Osmosis) was born on this day
14th Nov 1863	Belgian Chemist Leo Baekeland (Inventor of Bakelite) was born.
18th Nov 1897	British Physicist Petrik M.S.Bleckett (Discoverer of Nuclear Reaction) was born.
19th Nov 1997	Kalpana Chawala's (First Woman Astronaut of Indian Origin) first flight in space.
19th Nov 1912	Cell Biologist George E Palade (Discoverer of Ribosomen) was born.
20th November	Universal Children's Day. (by U.N.)
21th November	World Television Day. (by U.N.)
29th Nov 1803	Austrian Physicist Christian Doppler (Discoverer of Doppler effect Radar) was born.
30th Nov 1858	Sir Jagdishchandra Bhagwanchandra Bose (Great Indian Scientist and Botanist) was born.
30th Nov 1917	Sir Jagdishchandra Bose started "Bose Research Institute" for research on Plants and Animals at Calcutta.

U. N. : United Nations

WHO : World Health Organization

UNESCO : United Nations Educational Scientific & Cultural Organization

Answers: 1. b 2. b 3.d 4.b 5.c

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

बहुजनहिताय बहुजनसुखाय

KNOW THE EXHIBIT AT FUN SCIENCE GALLERY

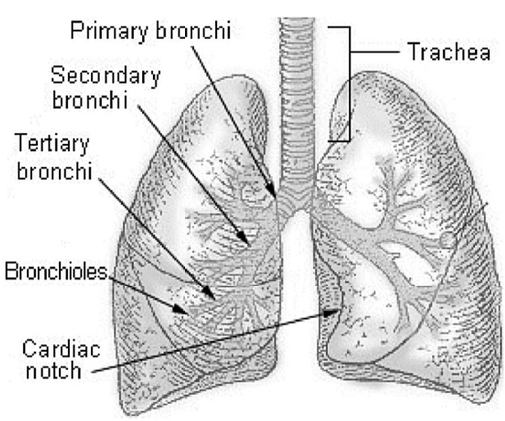
Changing Colours

Look through the circular plastic disc and slowly rotate it. Observe the change of colours in the framed portrait inside.

The portrait is made of pieces of transparent adhesive tape and is placed between two polarizing films. The pieces of tape rotate the planes of polarization of constituent colours of light passing through it to different degrees. The front polarizing film when rotated allows light of particular colours to come through it and as a result we see changing colours.

Do you know about the process of Breathing?

Breathing is an essential activity for every living creature. All animal life breathes by taking in oxygen and man is not an exception to this rule. Although we think that breathing is a simple thing but in reality the whole process is quite complicated. When a person breathes in, air passes into the body through a series of tubes called 'the upper respiratory tract'. This starts with the nose, where any foreign particle is detained. From the nose, the air turns downwards through the 'pharynx' or throat. After this, the air goes through two smaller tubes call 'bronchi, each of which enters each lung. In the lungs, there are air sacs and it is here that air is received from the bronchi. At this point, some kind of sorting is done where the proper gases are used and unwanted gases are forced out. The air sacs are called 'Alveolus'.



The air which we inhale contains oxygen, nitrogen, carbon dioxide and water vapour. Inhaled air is by volume approximately 78.08% nitrogen, 20.95% oxygen and small amounts include argon, carbon dioxide, neon, helium and hydrogen. Our blood also contains these gases but in different measures. When we inhale, there is more oxygen in the alveoli than in the blood. So, the oxygen passes through the very thin walls of the blood vessels called capillaries and flows into the blood.

On the other hand, the gas exhaled is 4% to 5% by volume of carbon dioxide, about a 100 fold increase over the inhaled amount. The volume of oxygen is reduced by a small amount 4% to 5% compared to the oxygen inhaled. carbon dioxide goes from the blood into the air sacs of lung and is exhales. There are many minor facets of this process. But the main function of this whole process is the exchange of gases that enables all the cells to obtain oxygen and get rid of carbon dioxide.

The typical composition is:

- 5.0% - 6.3% water vapour
- 74.4% nitrogen
- 13.6% -16% oxygen
- 4% - 5.3% carbon dioxide
- 1% argon and several parts per million (ppm) of hydrogen and carbon monoxide, 1ppm of ammonia and less than 1 ppm of acetone, methanol, ethanol and other volatile organic compounds.

Courtesy :
Nand Shankar Tulja Shankar Mehta School No. 124

'GANDHI EXHIBITION'

'Gandhi Exhibition' was organized on the first floor of the Sardar Vallabhbhai Patel Museum from 3rd to 14th October, 2017 to celebrate 'Gandhi Jayanti'. In this exhibition replicas of various articles used by Gandhiji during his daily life, literature and books on Gandhiji's life are shown. Replicas of line drawings made by Artist Shri Rathin Mitra on more than 100 places visited by Gandhiji during freedom movement is another attraction of exhibition.

Science Quiz

1) Which of the following is non-renewable source?
a) Wind b) Coal c) Wildlife d) Water

2) What is the atomic number of Sulphur?
a) 12 b) 16 c) 18 d) 32

3) Which Scientist gave the definition of acid-base according to property?
a) Arrhenius b) Bronsted-Lowry c) Louis d) Robert Boyle

4) Which of the following is not a Space Shuttle?
a) Coloumbia b) PSLV c) Challenger d) Discovery

5) Which of the following is Mass- Energy equation of Einstein?
a) $E=\Delta mc$ b) $E = \Delta m^2c$ c) $E = \Delta mc^2$ d) $E = mc^2$

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. 'Nandshankar Tuljashankar Mehta School No-124' presented their project on "Multipurpose Alarm System". The project showcased the warning indication system for predetermination of disaster by using technology. As the changes in climate occurs very rapidly now a days, we are not able to predict about the occurring of natural disaster. That is why we need some thing which can be helpful for predetermination of the disaster. The apparatus made by students gives information about the disasters such as flood, cyclone, fire and theft etc. In this apparatus different sensors and electronic control circuits sense the changes happened in the atmosphere. The sensors attached to this circuit gives information through siren and indication bulb as and when disaster occurs. Using this device one can prevent the damage of property and civilization.