

# SCIENCE CENTRE NEWS LETTER

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## SCIENCE CENTRE

Volume 4, Issue 06

### WHAT'S NEW IN SCIENCE

#### Obesity alone does not increase risk of death

Researchers at York University's Faculty of Health have found that patients who have metabolic healthy obesity, without any other metabolic risk factors, do not have an increased rate of mortality. The results of this study could impact how we think about obesity and health, says Jennifer Kuk, associate professor at the School of Kinesiology and Health Science, who led the research team at York University. He further stated "This is in contrast with most of the literature and we think this is because of most studies have defined metabolic healthy obesity as having up to one metabolic risk factor". "This is clearly problematic, as hypertension alone increases your mortality risk and past literature would have called these patients with obesity and hypertension, 'healthy'. This is likely why most studies have reported that 'healthy' obesity is still related with higher mortality risk. "Kuk's study showed that unlike dyslipidemia, hypertension or diabetes alone, which are related with a high mortality risk, this isn't the case for obesity alone. The study followed 54,089 men and women from



five cohort studies who were categorized as having obesity alone, 1-clustered with a metabolic factor, 2-elevated glucose, 3-blood pressure or lipids alone, 4-clustered with obesity and 5-another metabolic factor. Researchers looked at how many people within each group died as compared to those within the normal weight population with no metabolic risk factors.

Current weight management guidelines suggest that anyone with a BMI (Body Mass Index) over 30 kg/m<sup>2</sup> should lose weight. This implies that if you have obesity, even without any other risk factors, it makes you unhealthy. Researchers found that 1 out of 20 individuals with obesity had no other metabolic abnormalities. "We are showing that individuals with metabolically healthy obesity are actually not at an elevated mortality rate. We found that a person of normal weight with no other metabolic risk factors is just as likely to die as the person with obesity and no other risk factors," says Kuk.

Courtesy :  
Smt. Shirinbai Jamshedji Lashkari Pri. Girls School no. 220

### SCIENTIST OF THE MONTH

#### Vijay Pandurang Bhatkar

Vijay P. Bhatkar was born on October 11, 1946 at Muramba. He did his B.E. from Nagpur University in 1965 and Ph.D. from the Indian Institute of Technology, Delhi in 1972. Dr. Bhatkar contributed immensely to the field of advanced computing. India's first super computer 'PARAM 8000' was directed by him in 1991. He steered India's initiative in developing terra flop architecture super computer and creating a National PARAM Super computing Facility (NPSF),



delivering and installing a 100 giga flops PARAM 10,000 open frame Architecture System in 1998, the largest system of its kind in Asia, excluding Japan. In order to make millions of home educaetd, Dr. Bhatkar initiated the Education-To-Home (E.T.H) Mission. He is also credited with the founding of several major national laboratories. Dr. Bhatkar received the 'Electronics Man of the Year Award' in 1992 and the Padma Shri in 2000.

Courtesy :  
Smt. Shirinbai Jamshedji Lashkari Pri. Girls School no. 220

## SCIENCE FACTS OCTOBER 2018



### Timings

Tuesday to Friday  
9.30 am to 4.30 pm

Saturday - Sunday  
& Public Holidays  
11.00 am to 6.30 pm

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### Breast Cancer Awareness Month

1st Oct	World Habitat day (1st Monday of October) (by U.N.)
3rd Oct 1803	Johan Gorrie (Inventor of a Cold Air Process of Refrigeration) was born.
4th Oct 1832	William Griggs (Inventor of Photo Chromo Lithography) was born.
4th Oct 1957	Soviet Union launched first artificial Earth Satellite named "Sputnik-1"
4th Oct	World Space Week (by U.N.)
5 th Oct	World Teachers Day. (by UNESCO)
5 th Oct 1864	Louis Lumiere (Inventor of first Motion Picture Camera) was born.
6 th Oct 1893	Maghnad Saha (Great Indian Astrophysicist) was born.
8th Oct 1917	Rodney Rabert Porter (Discoverer of exact Chemical Structure of Antibody) was born
10th Oct 1731	Henry Cavendish (Discoverer of Hydrogen gas) was born.
11th Oct	International Day of the Girl Child (by U.N.)
12th Oct 1860	Elmer Sperry (Inventor of the Gyro Scope) was born
16th Oct	World Food Day (by U.N.)
19th Oct 1783	The first manned balloon flight done by Scientist Jean Francois Pilatre de Rozier.
19th Oct 1910	Subrahmanyam Chandrasekhar (Nobel Prize winner Astrophysicist of India) was born.
20th Oct 1891	James Chadwick (Discoverer of Neutron) was born.
21th Oct 1833	Alfred Nobel (Inventor of Detonator for Dynamite & Nitro-Glycerine) was born.
22th Oct 1896	Charles Glen King (Discoverer of Vitamin C) was born.
22th Oct 1905	Karl Jansky (Discoverer of Cosmic Radio Wave Emission) was born.
27th Oct 1811	Issac Singer (Inventor of Home Sewing Machine) was born.
28th Oct 1914	Jonas Salk (Inventor of Polio Vaccine) was born.
29th Oct 1656	Edmond Halley (Discoverer of Halley's Comet) was born.

U. N. : United Nations

WHO : World Health Organization

## KNOW THE EXHIBIT AT FUN SCIENCE GALLERY

### Musical Tube

Hit the freely hanging metallic pipes one by one the small hammer and listen to the different musical notes emitted. As you hit a pipe, the air column inside it starts vibrating and sound of a particular pitch of this sound depends on the length of the air column. The shorter the length of air column, the higher is the pitch.



## SCIENTIFIC QUESTION

### How do Snake Move?

It is very curious to know about, how snakes move around after all they don't have arms or legs. But since snakes have no legs or arms, they use its special types of scales and muscle. In a further look at snake's anatomy, we find that a snake's skeleton is formed mostly by ribs, except for the head and tail. Each rib attaches to a muscle giving them powerful and flexible bodies, but without its scales, snakes would have a difficult time moving forward instead they would simply slide around! We all can relate to a slithering snake, when we think of snake movement. But that image is rather simplistic, since much like horses which have 4 'gaits' (walk, trot, canter and gallop) snakes also move in 4 different ways. These are 4 different types of snake movement, 1-Serpentine movement, 2-Caterpillar movement, 3-Sidewinding movement and 4-Concertina movement which are described as under :

#### 1- Serpentine movement

The serpentine movement is motion used by most snake species, both in land or in water. When thinking, snake movement most of us instinctively remember this type of motion. The serpentine movement basically consists of a wavy, S-shaped movement, for that reason, it is also known as lateral undulation. The snake will contract its muscles starting at the head, moving its body from side to side, creating a series of

rock, tree, root, branch or any other bump or resistance point to move forward. This type of motion is not very efficient on slick or slippery surfaces like glass, because of the resistance points needed for the snake to move forward. However in water, serpentine movement easily



propels snakes forward with each contraction of the body pushing against the water.

#### 2-Caterpillar movement

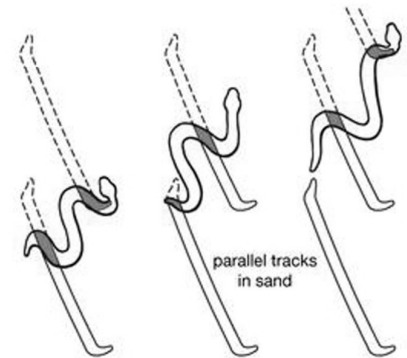
The snake caterpillar movement also known as rectilinear movement consists of a slow, straight movement. Snakes use their wide ventral scales located on their belly to grip the ground, while using other scales to push forward. It's still a wavy movement but instead of side to side like in serpentine movement, the snake body forms small, up and down curves. The rippling effect observed in the snake body when using this type of movement



resembles that of a caterpillar, hence the name, caterpillar movement. The caterpillar movement is also the most used by larger snake species to move around, like the massive green anaconda.

#### 3-Sidewinding movement

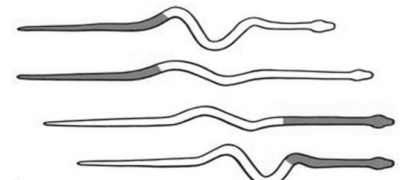
primarily on environments with few resistance points available for snakes to use other types of motion like serpentine or caterpillar movements. In loose and slippery terrains, like sandy or muddy environments



snakes will resort to the sidewinding movement, which is basically a variation of the serpentine movement.

#### 4-Concertina movement

When snakes need to climb or move in tight spaces, they will use a motion type called the concertina movement. The snake ensures a tight grip by bunching its body into several tight curves. The snake achieves the movement by continually springing forward again and again to find a new place to grip the anterior part of its body.



## Exhibition At Science Centre

### Stepped Wells and Reservoirs of Western India

An exhibition on 'Stepped Wells and Reservoirs of Western India' was jointly organized by Surat Municipal Corporation with American Institute of Indian Studies, Gurugram at Art Gallery of Science Centre, Surat from 08/09/2018 to 11/09/2018. This exhibition was inaugurated by Honorable Mayor Dr. Jagdish Patel on 08/09/2018 at 11:00am. This exhibition was prepared by centre for Art and Archeology, American Institute of Indian studies and was curated by renowned Art Historian Dr. Kirit Mankodi. The exhibition features Stepped Wells and Reservoirs of Western India especially from Gujarat and Rajasthan, showcasing its design, Sculptures and important information about it. The main attraction of exhibition is walk through to 'Ranki Vav' through virtual reality. In addition to that a Photograph Exhibition on Heritage of Surat was also organized by Surat based Institution S.V.N.I.T.



### Ganesh

Surat Municipal Corporation organized an exhibition of Ganesh idols in various forms made various material along with paintings and photographs was held at Art Gallery of Science Centre. This exhibition consists of story on birth of Ganesh, its religious importance, information on Ganesh festival in Gujarat and other places, various forms of Ganesh and importance of Ganesh visarjana. Along with idols from collection of Architect Shri Sanjaybhai Joshi and from Sardar Vallabhbhai Patel Museum's collection made from Marble, Copper, Brass, Stone, Fiber, Clay, Silver, Wood, Glass Shell, Conch, Crystal etc. and exhibits 250 photographs of different poses of Ganesh. This exhibition was opened for public from 13 September to 25 September, 2018 at the Art Gallery of Science Centre.



## Science Project

Surat Municipal Corporation had organized 'Science Fair' at ground floor, Art Gallery, Science Centre, Surat on 03<sup>rd</sup> and 04<sup>th</sup> August 2018. Smt. Shirinbai Jamshedji Lashkari Pri. Girls School no. 220 had presented their project on '**Solar Tracker**'.

**Aim:-** Production of maximum electric energy by using tracking with less Solar panels.

**Principal:-** Transfer of Solar Energy into Electric Energy.

We use mineral wealth like Petrol, Diesel, Kerosine etc and Coal Power Plant, Nuclear Power Plant etc to produce electric energy. The use of such mineral health environment pollution occurs and environment problems like Globe warming is generated. Thus if we want to move our city clean and green, we must decrease the use of mineral health, Coal Plant and Nuclear Power Plant and increase the use of solar energy because solar energy is inexhaustible energy source getting from environment.

**Benefits:-**

1. The energy produced from sunlight is stored in battery, which can be used in houses and factories.
2. If this project is used in home and factories, we can be free from air pollution.

