

SCIENCE CENTRE NEWS LETTER

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SCIENCE CENTRE

Volume 5, Issue 2

WHAT'S NEW IN SCIENCE

Climate rewind: Scientists turn carbon dioxide back into coal

The research team led by RMIT (Royal Melbourne Institute of Technology) University in Melbourne, Australia have developed a new technique that can efficiently convert CO₂ from a gas into solid particles of carbon. Published in the journal Nature Communications, the research offers an alternative pathway for safely and permanently removing the greenhouse gas from our atmosphere.

RMIT researcher Dr Torben Daeneke said converting CO₂ into a solid could be a more sustainable approach.

How the carbon conversion works?

Lead author, Dr Dorna Esrafilzadeh, a Vice-Chancellor's Research Fellow in RMIT's School of Engineering, developed the electrochemical technique to capture and convert atmospheric CO₂ to storable solid carbon.

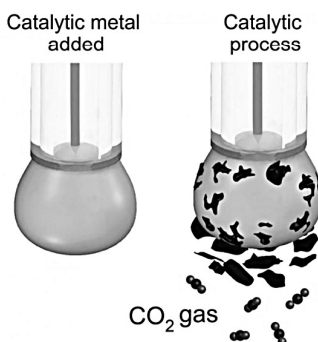
To convert CO₂, the researchers designed a liquid metal catalyst with specific surface properties that made it extremely efficient at conducting

electricity while chemically activating the surface.

The carbon dioxide is dissolved in a beaker filled with an electrolyte liquid and a small amount of the liquid metal, which is then charged with an electrical current.

The CO₂ slowly converts into solid flakes of carbon, which are naturally detached from the liquid metal surface, allowing the continuous production of carbonaceous solid.

The research was conducted at RMIT's MicroNano Research Facility and the RMIT Microscopy and Microanalysis Facility, with lead investigator, Honorary RMIT and ARC (Australian Research Council) Laureate Fellow, Professor Kourosh Kalantar-



Zadeh.

The research is supported by the Australian Research Council Centre for Future Low-Energy Electronics Technologies (FLEET) and the ARC Centre of Excellence for Electromaterials Science (ACES).

Courtesy : Maharshi Nagarjun Primary School No.-236

SCIENTIST OF THE MONTH

Badanaval Venkata Sreekantan

Badanaval Venkata Sreekantan was born on June 30, 1925 at Nanjanyud in Karnataka. After completing his doctorate at Bombay in the year 1954, he became Professor and then Director at the Tata Institute of Fundamental Research (TIFR).

Badanaval Venkata Sreekantan contributed greatly in the fields of elementary particle physics, extensive air showers, high energy interactions, deep underground studies in Kolar Gold Fields on microns and neutrons, X-ray and Gamma ray astronomy with balloons rockets and satellite. Using one

of the largest cloud chambers built in the world, he organised shower experiments in

India. The proton decay experiment in Kolar Gold Fields, which is conducted by his groups, is an internationally recognised effect for proving the theory of Grand Unification.

Dr. Sreekantan received the C.V. Raman Award in the year 1977, the Homi Bhabha Medal and the R.D. Birla Memorial Award in 1982. He was awarded the Padma Bhushan in the year 1988.

Courtesy :

Maharshi Nagarjun Primary School No.-236





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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SCIENCE FACTS JUNE 2019

1st June	"International Children's Day"
5th June	"World Environment Day"
5th June 1783	Discovery and first launching of primary Balloon
6th June 2012	The astronomical event "Transit of Venus" happened.
7th June 1811	Mr. James Young Simpson (who invented Chloroform) was born
7th June 1979	India Launched first low orbit Earth observation Satellite - "Bhaskar" into the Space
8th June	"World Brain Tumour day"
8th June	"World Ocean day"
8th June 1936	Indian state Broadcasting Service (ISBS) was renamed as "All India Radio" (AIR) on this day
10th June	"Ballpoint Pen Day"
11th June 1963	First Lady Astronomer "Valentina " came back from journey to Space
12th June	" World Day against child labour"
12th June 1872	Railway train started in Japan
14th June	"World Blood Donor Day (WHO)"
15th June 1752	Well-known Scientist Mr. Benjamin Franklin had done experiment of kite.
16th June 2019	The third Sunday of June is celebrated as " International father's Day"
19th June	World Sickle cell Anaemia Awareness Day
21st June	It is the longest day of the year in Northern Hemisphere and longest night of the year in Southern Hemisphere because Sun's rays strikes normally in Northern Hemisphere
22nd June 1973	Successful landing of the astronomer of Skylab in Pacific Ocean after revolving around the earth for 28 days
23rd June	United Nations Public Service Day (UN)
24th June 1961	Successful launching of first Indian "Super Sonic Fighter A"
30th June 1880	Longest total Solar Eclipse of millennium

U. N. : United Nations

WHO : World Health Organization

KNOW THE EXHIBIT AT FUN SCIENCE GALLERY

Test your Hearing

First press the button 'Restart the test'. The test will start. The frequency is increasing in the first column (Green colour increasing). When you hear a sound from the speaker, press the button 'Click here if you hear a sound'. The frequency is going to next column and again frequency is increasing. When you hear a sound again press the button 'Click here if you hear a sound'. Complete all the column by this way. Lastly press the button 'Check Result'. Yellow coloured line is the typical response and pink coloured line is your response of Hearing. If yellow and pink coloured is matching, your hearing response is good.



SCIENTIFIC QUESTION

What is the role of liver in human body?

The liver is one of the most essential organs of the body. It is a large, meaty organ that sits on the right side of the belly. The average weight of a human liver is about one kilogram. The liver is reddish-brown in color and feels rubbery to the touch. Normally, you can't feel the liver, because it's protected by the rib cage.

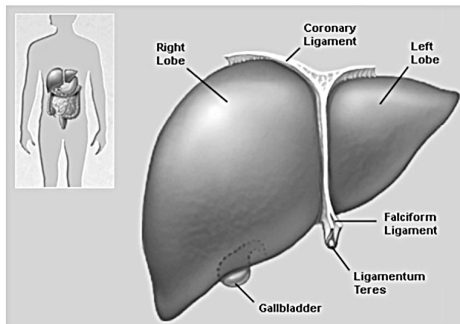
The liver has two large sections, called the right and the left lobes. The gallbladder sits under the liver, along with parts of the pancreas and intestines. The liver and these organs work together to digest, absorb and process food.

The liver's main job is to filter the blood coming from the digestive tract, before passing it to the rest of the body. The liver also detoxifies chemicals and metabolizes drugs. As it does so, the liver secretes bile that ends up back in the intestines. The liver also makes proteins important for blood clotting and other functions.

Types of liver disease includes following:

- **Hepatitis:** Inflammation of the liver, usually caused by viruses like hepatitis A, B, and C. Hepatitis can have non-infectious causes too, including heavy drinking, drugs, allergic reactions, or obesity.

- **Cirrhosis:** Long-term damage to the liver from any cause can lead to permanent scarring, called cirrhosis. The liver then becomes unable to function well.
- **Liver cancer:** The most common type



of liver cancer, hepatocellular carcinoma, almost always occurs after cirrhosis is present.

- **Liver failure:** Liver failure has many causes including infection, genetic diseases, and excessive alcohol.
- **Ascites:** As cirrhosis results, the liver leaks fluid (ascites) into the belly, which becomes distended and heavy.
- **Gallstones:** If a gallstone becomes stuck in the bile duct draining the liver, hepatitis and bile duct infection (cholangitis) can result.

Blood Tests:

- **Liver function panel:** A liver function panel checks how well the liver is working and consists of many different blood tests.
- **ALT (Alanine Aminotransferase):** An elevated ALT helps identify liver disease or damage from any number of causes, including hepatitis.
- **AST (Aspartate Aminotransferase):** Along with an elevated ALT, the AST checks for liver damage.
- **Bilirubin:** High bilirubin levels suggest a problem with the liver.
- **Albumin:** As part of total protein levels, albumin helps determine how well the liver is working.

- **Ammonia:** Ammonia levels in the blood rise when the liver is not functioning properly.

Liver Treatments

- **Hepatitis A treatment:** Hepatitis A usually goes away with time.
- **Hepatitis B treatment:** Chronic hepatitis B often requires treatment with antiviral medication.
- **Liver transplant:** A liver transplant is needed when the liver no longer functions adequately, whatever the cause.

Courtesy :

Maharshi Nagarjun Primary School No.-236

SUMMER CAMP

Surat Municipal Corporation had organized 'Summer Camp' at first floor of Art gallery, Science Centre from 1st to 10th May 2019. Students had learnt about Craft, Astronomy and Science. In this summer camp two groups were made according to the age. Group 'A' was for children of the age group 7 to 12 years and Group 'B' were for 13 to 17 years.



SCIENCE PROJECT

Surat Municipal Corporation had organized 'Science Fair' at Ground Floor, Art Gallery, Science Centre, Surat on 03rd and 04th August 2018. Maharshi Nagarjun Primary School No.-236 had presented their project on 'Enemy of Swine Flu'. In this scientific era, humans have to face many challenges. Despite many efforts for their own health, the human beings fail somewhere. Today, human beings can do any work but human beings are helpless against many wonders of nature. Although many discoveries are being made for human health, human beings can not bring the desired result. At that time, precautions become the safety. **Aim:** Gain information about Swine Flu and its symptoms and try to prevent it. **Principle:** The risk of the micro virus capable of spreading in organism. Micro-organisms like virus, bacteria, fungus enters in organisms and grow more and more by developing and reproducing. **Method to prepare:** To make homemade decoction, take Ardosi-5 nos., Tulsi-11 nos., Sonth- ½ spoon, Turmeric- ½ spoon, caraway seeds-½ spoon, pepper- 10 nos., jaggery- ½ spoon in 1 liter water and discriminate it in another container. Decoction is ready. **Application:** Protecting from the horrific disease spreading in the world. Cost of expensive medicine can be avoided. Children can be fed in a group in school so that the health of children is maintained.



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