

## Second phase of measles-rubella vaccination drive launched in eight states



The MR vaccine is meant for every child in 9 months to less than 15 years group, and can be administered even if they have already received it. It was started across the country under the universal immunisation programme (UIP)

Union health ministry's campaign aims to vaccinate approximately 41 crore children against measles and rubella in a phased manner, making it the largest-ever worldwide.

Aiming to eliminate measles and curb instances of rubella by 2020, the Centre has rolled out the second phase of its measles-rubella (MR) vaccination campaign in the country.

The **second phase** of campaign will cover Andhra Pradesh, Chandigarh, Himachal Pradesh, Kerala, Telangana, Uttarakhand, Dadra and Nagar Haveli and Daman and Diu. Nearly 3.4 crore children will be covered in this stage.

Measles is a viral infection that can be fatal, congenital rubella syndrome is responsible for irreversible birth defects. The Union health ministry's campaign against the two diseases intends to cover approximately 41 crore children in a phased manner, making it the largest-ever worldwide.

The **first phase** of the campaign was launched across five states — Tamil Nadu, Karnataka, Goa, Lakshadweep and Puducherry — in February this year.

### MEASLES – RUBELLA

It is highly contagious and spreads through coughing and sneezing of an infected person. It can also make a child vulnerable to life threatening complications such as diarrhoea, pneumonia and brain infection. Symptoms of the infection can include cataracts and deafness. It can also affect the heart and the brain.

**Rubella**, also known as **German measles** or **three-day measles**, is an infection caused by the rubella virus. It is symptomatically similar to measles. It is generally a mild infection, but has serious consequences if infection occurs in pregnant women, causing congenital rubella syndrome (CRS). Rubella is usually spread through the air via coughs of people who are infected. People are infectious during the week before and after the appearance of the rash. Babies with CRS may spread the virus for more than a year. Only humans are infected. Insects do not spread the disease. Once recovered, people are immune to future infections.

CRS is characterized by congenital anomalies in the foetus and newborns affecting the eyes (cataract, glaucoma), brain (microcephaly, mental retardation), ears (hearing loss) and heart defects.

---

## Two new species of *Cycas* found



A tree found in the Acharya Jagadish Chandra Bose Indian Botanic Garden in West Bengal — the tree had, for years, been a puzzle to botanists and scientists — has

revealed two new species of Cycas to the world. The species were named after scientists Paramjit Singh Channa and Dharmraj S. Mishra - Cycas dharmrajii.

Cycas are one of the most ancient plants whose fossils date to the Jurassic period and are often referred to as “living fossils”.

14 species found in India.

The lone Cycas pschannae found in the Botanic Garden may have been planted by the British. Cycads are very slow growing trees

### Unique features

What makes the Cycas dharmrajii distinct from other Cycas found in the country is the well-defined 10 to 28 hook-like structures in the apex of the mega sporophyll (sporophyll are spore-bearing leaf-like female sex organ of the plant).

The sporophylls of Cycas pschannae are characterised by the presence of two lateral horn-like structures.

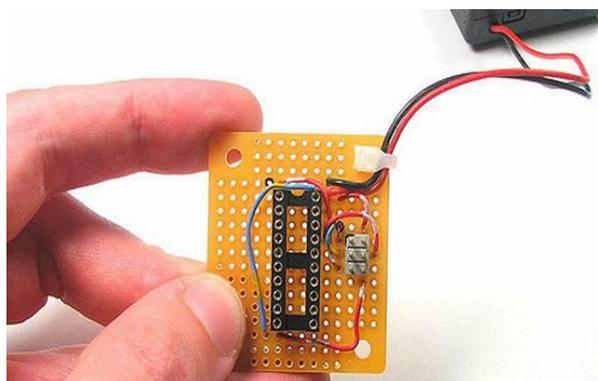
According to scientists, Cycas evolved on the earth as the first seeded plants and they grow very slowly, adding only a few centimetres every year.

Nearly 65% of Cycas are threatened but what makes the flora unique is that despite being a contemporary of the dinosaur, the genus continues to thrive.

There are over 100 species of Cycas found across the globe.

---

## Low-cost, sensitive CO sensor from IISc



Indian Institute of Science researchers have developed a highly sensitive nanometre-scale carbon monoxide sensor by employing an innovative fabrication technique. It is known that carbon monoxide (CO) can have adverse effects on the health of people

exposed to it. Hence, it becomes necessary to have good, low-cost carbon-monoxide sensors.

Typically, a sensor would be a thin, current carrying plate whose resistance changes on exposure to carbon monoxide. This in turn changes the value of the current flowing through it. This change when measured indicates the level of carbon monoxide in the air. Most available sensors are in the micrometer range, a nanometer-sized detector would have a higher sensitivity, but the cost of manufacturing it goes up as the size decreases. This is where the work of C.S. Prajapati and coworkers of Indian Institute of Science comes in.

### CO sensor

- The nanometer-sized sensor was made using zinc-oxide (ZnO) nanostructure on a silicon chip with tiny polystyrene beads
- These beads were first added on the on the oxidised chip in a hexagonal close-packed structure
- Vacuum is maintained between the silicon wafer and beads
- When a high voltage is applied during this stage, it etches away the surfaces of the beads forms a desired uniform gap among the beads which makes ZnO is deposited on the system
- The spaces between the beads creates a nano-mesh that can function as a nanosensor
- The nanometre-scale Carbon Monoxide (CO) sensor is able to detect a difference in CO level as low as 500 parts per billion (ppb)
- It can selectively respond to CO even in the presence of other gases
- The sensor was developed using novel fabrication technique that does not involve costly and time consuming lithography technology that is used until now

### What is Carbon Monoxide (CO)?

- CO is a colorless, odorless gas
- It is harmful when inhaled in large amounts

- The greatest source of CO is internal combustions (IC) engines of cars, trucks and other vehicles or machinery that burn fossil fuels
  - Breathing high concentration of CO reduces the amount of oxygen that can be transported in the blood stream to critical organs like the heart and brain.
- 

## IIT Delhi team develops a new antibacterial drug-delivery system



### 7<sup>th</sup> August:

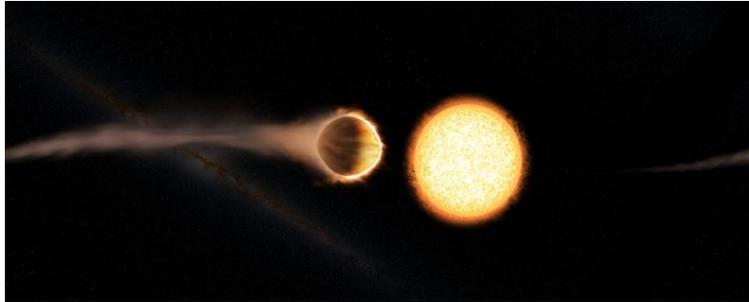
The nanoconjugates will be useful for cancer patients suffering from bacterial infections. A new antibiotic drug-delivery system that improves the efficacy of drugs thereby reducing the dosage used for treating bacterial infections has been tested in a lab by researchers at the Indian Institute of Technology (IIT) Delhi.

Drug delivery becomes better and the bioavailability improves when the drug is conjugated [bound] to gold nanoparticles. So reduced dosage is sufficient to kill the bacteria. Reducing the dosage of antibiotics used is one of the strategies to reduce the possibility of drug resistance setting in.

---

## Hubble detects Exoplanet with glowing water atmosphere

Scientists have found the strongest evidence to date for a stratosphere on an enormous planet outside our solar system.

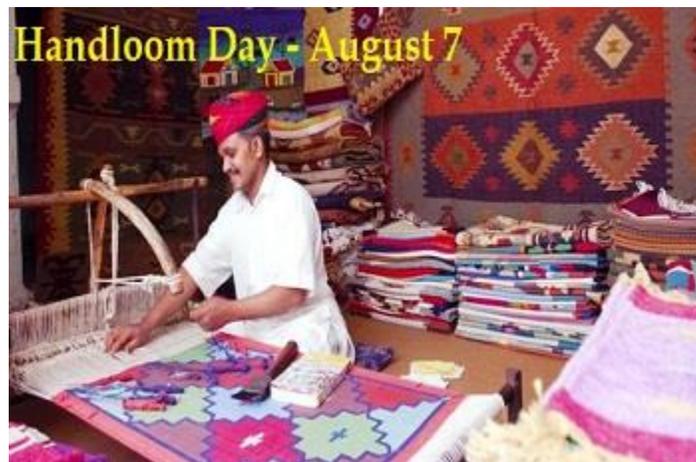


An international team of researchers, led by the University of Exeter, made the new discovery by observing glowing water molecules in the atmosphere of the exoplanet **WASP-121b** with NASA's Hubble Space Telescope.

In order to study the gas giant's stratosphere - a layer of atmosphere where temperature increases with higher altitudes - scientists used spectroscopy to analyse how the planet's brightness changed at different wavelengths of light.

---

## 7<sup>th</sup> August - National Handloom Day



The Prime Minister described 'Khadi for Nation, Khadi for Fashion' as one of the principles that could serve as a guide for the people.

The Union Government had declared 7 August as the National Handloom Day in July 2015 with the objective to generate awareness about importance of India's handloom industry.

The first National Handloom Day was inaugurated on 7 August 2015 by Prime Minister Narendra Modi at Chennai, Tamil Nadu.

## S. Aparna appointed Executive Director, World Bank



S. Aparna, an IAS officer from Gujarat cadre has been appointed as Executive Director, World Bank to represent the constituency of India, Bangladesh, Bhutan and Sri Lanka for three years.

A 1988-batch IAS, she is currently Principal Secretary to Gujarat Chief Minister Vijay Rupani. At the World Bank, she will replace Subhash Garg, who was recently appointed Economic Affairs Secretary, Ministry of Finance.

At the World Bank, she will represent the constituency of India, Bangladesh, Bhutan and Sri Lanka for three years. She will replace Subhash Garg, who was recently appointed Economic Affairs Secretary, Union Ministry of Finance.

The **World Bank** is an international financial institution that provides loans to countries of the world for capital programs. It comprises two institutions: the International Bank for Reconstruction and Development (IBRD), and the International Development Association (IDA). The World Bank is a component of the **World Bank Group**.