

SCIENCE CENTRE NEWS LETTER

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Issue 9



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SCIENCE CENTRE

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WHAT'S NEW IN SCIENCE

Researchers Find molecular oxygen on Halley's Comet

Scientists Participating in the European Space Agency's Rosetta mission were Surprised to find molecular oxygen around the comet 67p churyumov-Gerasimenko in October. The researchers believe that the O₂ (oxygen) was probably trapped in water ice when the comet formed approximately 4.6 billion years ago. Their findings raised their curiosity to whether other comet could also potentially contain the molecule.

Led by Martin Rubin from the university of Bern in Switzerland, the team of research were able to find trace of O₂ on Halley's comet. Publishing their

findings on Dec 4 in the Astrophysical Journal Letters the researchers found that not only is O₂ present on the comet, but also it is the third most abundant species on the celestial icy body.



The researchers used data from the neutral mass spectrometer (NMS) instrument. At such a close range of 596 Kilometer scientists were able to gather data ejected from

the comet the data revealed mainly water and monoxide as well as trace of methane, ammonia, iron and sodium.

SCIENTIST OF THE MONTH

Prof Satyendra Nath Bose

Satyendra Nath Bose (Prof S N Bose) was born on January 1, 1894. Right from his school days he displayed extraordinary temperament. He was fondly called styen among his friends circle. After completing his high school education. he joined kolkata's presidency college. Mathematics and physics were his principal subject. In 1913, he completed graduation from kolkata University with a first class first.

In 1916, the vice chancellor of kolkata University, sir Ashutosh Mukherjee appointed Bose and saha as-lecturers of mathematics in the University Science college. Bose's research paper 'Statistics of

the magazine. Einstein had made a personal note that the paper present a realistic picture of the subject. Later it became an important part of physics all over the world. In 1924, on the basic of his research work, Bose took study leave and went abroad. In paris, he conduct research at Madame Curie's laboratory. Once again Bose got an opportunity to return to kolkata. He was appointed as professor of physics at kolkata University. He stayed there till his retirement in 1956.



Photon' was translated into german by Einstein. Einstein then sent it to the editor of

In 1954, the Government of India conferred on him the padma vibhushan. This great Indian mathematician and physicist died on February 4, 1974, at the ripe old age of 80. He would be always remembered for his work with Einstein in quantum statistics.



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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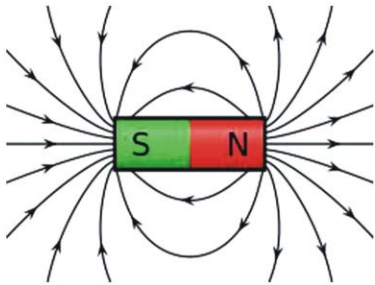
SCIENCE FACTS JANUARY 2016

2 Jan 1822	German physicist Rudolph J. E. Clausius (Who researched Thermodynamics) was born on this day.
2 Jan 1959	Soviet Union launched first man made Satellite "Lunik - 1".
4 Jan 1643	Sir Isaac Newton, great physicist, mathematician and astronomer (who invented Newton's Law of Motion) was born on this day.
4 Jan 1797	German astronomer Wilhelm Beer (who made the first moon map) was born on this day.
4 Jan 1809	Louis Braille (inventor of a reading system for the blind) was born on this day.
5 Jan 1859	Dewitt B. Brace (inventor of the spectrophotometer) was born on this day.
5 Jan 1900	Physicist, Dennis Gabor (inventor of holograph) was
7 Jan 1610	Galileo observed first time Jupiter and its four moons with telescope
8 Jan 1942	English physicist Stephen Hawking (who first revealed Black Holes and Baby Universes) was born on this day.
10 Jan 1877	Frederick Gardner Cottrell (who invented the electrostatic precipitator) was born on this day.
12 Jan 1899	Swiss chemist, Paul H. Muller (who perform the first open heart surgery) was born on this day.
15 Jan 1759	"The British Museum" world's oldest and biggest museum was opened for the people
19 Jan 1736	James Watt (Inventor of Steam Engine) was born on this day
21 Jan 1743	John Fitch (who invented steam boat) was born on this day.
21 Jan 1921	Barney Clark (who was the first person to receive a permanent heart) was born on this day.
21 Jan 1954	America launched its first Atomic power operated Submarine named "Nautilus"
24 Jan 1880	Elisabeth Achelis (who invented the world calendar) was born on this day.
25 Jan 1627	Robert Boyle (who wrote Boyle's Law of Ideal Gases) was born on this day.
27 Jan 1834	Dmitri Mendeleev (who invented the periodic table of the elements) was born on this day.

KNOW THE EXHIBITS AT FUN SCIENCE GALLERY

Identify Magnet

Place the round container over each circle and tap gently. The iron filling inside the container rearrange themselves under the influence of a hidden magnet can



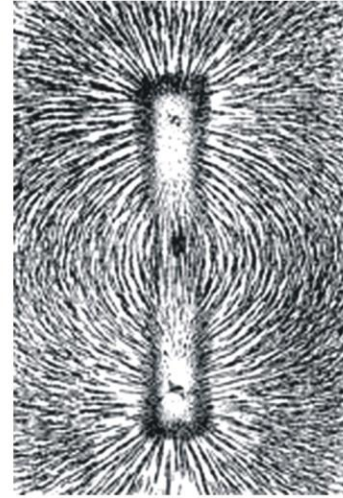
you identify the shape and arrangement at the patterns created by the iron filling?

Press the switch to check? Magnets arranged in different ways produce different field patterns around them. What is the principle behind this?

Magnetic Field :

Magnetic field is the magnetic effect of electric currents and magnetic materials.

Iron filling placed in a magnetic field line up to form lines that correspond to 'field lines'.



SCIENTIFIC QUESTION

What is an Atom?

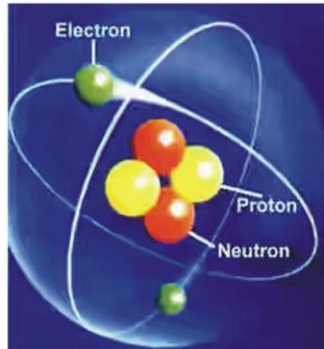
Big things are made of smaller things. For example, a fiber of wood is made of tinier fibers of a Substance called lignin. And lignin is made from groups of very tiny things- atoms.

Take apart any object, from a Skyscraper to a pinhead. All object items, materials, substances, chemicals and others forms of matter consist of atoms.

Different kinds of atoms:

Atoms are not all the Same. There are about 112 different Kinds. These different Kinds of atoms are known as the chemical element. the names of some chemical elements are familiar, Such as aluminium, iron and Calcium. The atoms of the different chemical elements are all different from each other. So aluminum atoms are different

from iron atoms, and so on . But all the atoms of one chemicals elements are exactly the same as each other.

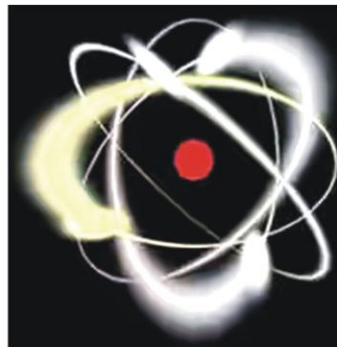


I n s i d e atoms : A single atom is the smallest particle of a chemical element that still has all the feature and properties of that particular element. but atoms are not

chemical element, each kind of particle is the same.

An atom has a central part called NUCLEUS. This contains the subatomic particles named protons and neutrons. Each proton has electrical charge only positive. Neutron are the same size as proton but they have no electrical charge. Electron are much smaller than proton and neutrons. They are not in nucleus. They whizz around it, in layers known as shells. Electrons in the outer shells have more energy than those in

the tiniest particles of all. they made of even smaller pieces, called subatomic particles. there are three main kinds of subatomic particles. these are protons, neutrons and electrons. In every atom of every



the inner shells. Each electron has negative charge. usually an atom has the same number of proton and electrons. So the positive and negative are equal, which means the whole atom has no electrical charge.

SCIENCE QUIZ

1. How far is our sun from the center of Akash Ganga galaxy ?

(A) 30,000km (B) 30,000mile (C) 30,000 lac km (D) 30,000 light year

2. On Which Planet Does Sun Set in East ?

(A) Mercury (B) Venus (C) Saturn (D) pluto

3. What will be The Colour Of Hottest Star ?

(A) Red (B) Yellow (C) Blue (D) Orange

4. How Much is The area covered by one nakshatra in celestial ecliptic ?

(A) $13^{\circ}20'$ (B) $20^{\circ}13'$ (C) $13^{\circ}30'$ (D) $23^{\circ}20'$

5. Which Satellite was Launched by India Satellite ?

(A) INSAT-1 (B) INSAT-4A (C) IRS-P (D) CARTOSAT

6. For The Information Of Geographic Maps, Which Artificial Satellite Is Useful ?

(A) METSAT (B) IRS-T (C) INSAT (D) CARTOSAT

7. Which Compound in the atmosphere gives Uranus its blue Clours ?

(A) Methane (B) Helium (C) diamond crystals (D) Argon

8. What are the Components Of a Space Shuttle ?

(A) Orbiter, solid rocket boosters and command module.

(B) command module and solid rocket and boosters

(C) Orbiter, solid rocket boosters and external fuel tank.

(D) solid rocket boosters and Command module

9. What was the name Of the Re-usable laboratory include in same space shuttle mission ?

(A) Skylab (B) Spacelab (C) Shuttlelab (D) Rocket lab

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
Science Centre + Planetarium + Museum + Diamond Gallery		Planetarium
Above 18 Years	Rs. 100	Tuesday to Friday
3 Years to 18 Years	Rs. 65	
Science Centre + Museum + Diamond Gallery		Saturday, Sunday & Public Holidays
Above 18 Years	Rs. 60	09:30 to 10:20 English
3 Years to 18 Years	Rs. 40	10:30 to 11:20 Gujarati
		11:30 to 12:20 Gujarati
Science Centre + Planetarium + Museum + Diamond Gallery + 3D Show		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
		03:30 to 04:20 Gujarati
Planetarium		04:30 to 05:20 English
Above 18 Years	Rs. 50	05:30 to 06:20 Gujarati
3 Years to 18 Years	Rs. 40	
3D Show		
Above 18 Years	Rs. 60	
3 Years to 18 Years	Rs. 40	