I edition. April –June, 2009

ABHYASA
RESIDENTIAL PUBLIC SCHOOL
Perfection through Practice

Illuminati

The next awakening.....!!!!

ILLUMINATI:

The mystery behind the name.

-Bharavi.B

THE INCOMPLETE MIRACLE:

A biography of the smallest answer for the biggest question, LHC.

-Anmol.E, Harshin.L

DESK OF DEAN:

Historical development of modern astronomy, an article in commemoration of 400 years from the invention of the first telescope by Galileo.

-Mr. C.V.K. Shastry

'Men in the act'

BOARD OF EDITORS:

Anmol.E

Harshin.L

Bharavi.B

Anil Kumar

Yugandhara.C

Vivek Nair

Yashaswini.R

Anusha.B

Rohit.I

Harshwardhan.R

Akash.D

COVERPAGE DESIGNERS:

Harshin.L

Bharavi.B

Anmol.E

LAYOUT DESIGNERS:

Bharavi.B

Akash.D

Anmol.E

Harshin.L

SPECIAL THANKS:

Mr.Seenaiah

Illuminati

Mystery behind the name, the entire history & significance of the word.

Illuminations of some budding thoughts:

Articles, poems & puzzles by some excellent young Einsteins & Newtons!!!

The incomplete miracle:

An entire research on the God's particle, by some next generation geniuses.

Desk of the Dean:

A historical development of modern astronomy, by the dean himself. Straight from the desk of C.V.K. Shastry.

Amazing, unbelievable, scientific facts:

A collection of some of the rarest, but significant facts on the bottom of every page.

ILLUMINATI

ILLUMINATI mean the enlightened ones. It is a pre-historic European scientific group.

Since the beginning of history a deep rift has existed between science and religion. Outspoken scientists like Copernicus were executed by orthodox people for revealing scientific truths. In those days religion was always known to persecute science. So in 1500s, a group of men in Rome fought back against these orthodox people. Some of Italy's most enlightened men like Physicists, Mathematicians; Astronomers began meeting secretly to share their concern about the inaccurate orthodox teachings. They feared that these people's monopoly on truth threatened academic enlightenment throughout the world. They found the world's first scientific "think tank" called the **Illuminati**, the enlightened ones.

Through rights of extreme secrecy the scientists remained safe. Word spread and illuminati brotherhood grew to include academicians from all over Europe. The scientists met regularly in Rome at a secrete place called "Church of Illumination".

Many of illuminates wanted to combat church's tyranny with acts of violence, but their most revered member persuaded them against it. He was a pacifist as well as one of histories most famous scientist and first astronomer. He was none other than Galileo Galilee. Galileo was an illuminate and also a god devoted person. He once wrote that when he looked through his telescope at spinning planets, he heard god's voice in music of spars. Illuminati were a tool in the hands of ancient scientist to defend their knowledge.

This magazine has been titled Illuminati as it has been introduced to bring out talents of students and express their ideas and views without fear. The title on the cover page is in such a way that it reads the same even when inverted. This is known as an ambigram. It is not related to symmetry. It depends mainly on the script in which it is written.

A brief historical development of modern astronomy

The modern astronomy took its birth 400 years ago in 1609, when Galileo invented his optical telescope. To commemorate that historical ceremony, the year 2009 is being celebrated as the international year of astronomy. I would consider this a great opportunity to write an article on evolution of modern astronomy.

It all started in January 1609, with Galileo's small refracting telescope of just 2cm diameter. With this telescope, he discovered 4 largest moons of Jupiter, viz. Io, Europa, Callisto and Ganymede. Those observations along with Kepler's theory completely demolished the geocentric universe and gave rise to heliocentric view.

It is important to appreciate that astronomy is an observational science, in which we observe processes occurring in remote astronomical objects and they do not get repeated. There is only one thing that we can observe i.e., the radiation emitted by the object during a process or event. Observational astronomy there fore makes sense only along with physics and the two together forms the subject of astrophysics.

Astronomy can be broadly divided into 4 categories:-

1. Optical astronomy
2. Radio astronomy
3. Infra-red astronomy
4. X-ray, UV and gamma astronomy

Optical astronomy

The first serious attempt to develop a large telescope was made by Sir William Herschell who built a telescope in 1789 with a mirror diameter 1.2m. He observed our galaxy, Milky Way and numerous other fuzzy and nebulous objects which fro the first time led the astronomy **beyond the solar system.** Astronomy took next major leap when a large modern 2.5 reflector telescope was built at Mt. Wilson in California in 1917. Harley telescope on Mt. Palomar, California was later built in 1948 with a mirror
of diameter 5m, which is the largest telescope in the world. In India, we still have at best, only 2m telescopes at Nainital in UP, at Kavalur in Tamil Nadu, at Hanle in Ladhakh and one near Pune.

A milestone was reached in optical astronomy in April 24th, 1990 when a 2.4m Hubble space telescope was launched on a satellite in space. This has enormously improved detection capabilities. It has given extremely sharp images of galaxies which are as far as 12 billion light years away. Edwin Hubble when he used 2.5m Mt. Wilson telescope to observe various nebulous objects.

- Hubble discovered that many of these nebulae are actually galaxies outside Milky Way.
- He identified Cepheids, which stars of variable brightness and period of variability, in tens of nearby galaxies and he observed their luminosity to infer distances (d) of these galaxies.
- He also detected that light from these distant galaxies is red-shifted. Following Doppler's effect, Hubble concluded that these galaxies are moving away from us and estimated their velocities.
- Hubble thus discovered that **Universe as a whole is expanding** and deduced from distance-velocity graph that farther a galaxy from us, faster it is receding. That is, v=Hd, where H is called Hubble's constant. We will later discuss that H is actually time dependant i.e. it changes as the universe evolves.

Radio astronomy

Radio telescopes use metal antenna as receivers and the signals, which are usually weak, are then amplified and recorded electronically. First radio telescope was developed by Bell labs. Later a 76m radio telescope was built in 1950 in UK. For better resolutions radio astronomers use the technique of inter- ferometry developed my M.Ryle. This method employs multiple antennas and then combines the signals obtained from each antenna in a way that the image of the source is reconstructed.

In India, Ooty Radio Telescope consists of a parabolic cylindrical reflecting surface, 530m long and 30m wide and it tracks celestial objects
for about 10n hours continuously from their rising in east to their setting in west by simply rotating the antenna mechanically along its long axis. It
was built in 1970 and continues to be one of the most sensitive radio telescopes in the World.

Radio astronomy has given a wealth of information, never known before about the universe. The most important discovery was made by A.A. Penzias and R.W. Wilson in USA in 1965, observed that a radiation of about 10cm wavelength is pervading the entire universe uniformly. This radiation is called cosmic microwave background radiation (CMBR) and its observation was the first convincing evidence for the big bang model of the evolution of universe.

The other major discoveries of radio astronomy are Quasars, Pulsars, neutron stars and super novae.

Infra-red astronomy

Wavelengths slightly larger than red light are termed infra-red. For far infra-red, i.e. wavelengths 90 to 350 micro meters, we need space crafts, balloons or space satellites. IR telescopes are specially constructed at and maintained at liquid helium temperature (4K). Ground based telescopes built by NASA. In India, we have Gurushikhar IR observatory at Mt. Abu with 1.2m telescope along with stellar and IR photometers.

IR astronomy has discovered many distant galaxies which emit primarily in IR band. It has also provided mine of data about widely distributed cold inter-stellar dust in numerous galaxies and in inter-galactic space.

X-ray, UV and gamma astronomy

X-ray telescope was first developed by H. Wolter in 1951. He found that X-rays are well reflected metal surfaces at grazing angle of incidence and therefore used them to act as mirrors. In 1999, the two new generation large observatories were launched. First, Chandra (named in honour of S. Chandrasekhar who theoretically predicted White Dwarfs stars and got Nobel Prize in 1983) by NASA, with a Wolter telescope of effective area 400 square cm looked for X-ray photons in energy range 0.2 to 400keV. India too is ready to launch ASTROSAT space satellite equipped with 4 X-ray and a UV imaging telescope this year to celebrate IYA 2009.

X-ray observations have established that massive black holes exist at the center of normal galaxies like ours, and also at the center of galaxies having active galactic nuclei and quasars.

Other important discoveries are emission from diffused hot gas from within clusters of galaxies and in general a cosmic background X-ray radiation.

Cosmic UV radiation was first studied extensively from International UV Explorer launched in 1978. The important discovery in UV band is that of deuterium which is produced only during early phase of cosmic evolution.

There are many galactic and extra-galactic sources which are emitters of gamma rays. Important discovery in gamma ray astronomy is gamma ray bursts. At the center of our galaxy, lines of aluminium have been found in gamma band. Ultra-high energy gamma rays interact with particles in upper atmosphere and produce electron-photon cascade. These showers reach ground and have been observed in various observatories across the globe. In India, we have gamma rays observatories at Pachmarhi in MP and at Gulmarg in JK.

In International Year of Astronomy, it is really delightful for me that Abhyasa is planning to establish a Space Club and many students are enthusiastic to participate in this club and contribute richly to the understanding of the evolving universe.

- CVK Sastry

(Dean – Sciences and Mathematics)

The Heaviest of the elements

Hey guys! Did you know that the elements above atomic number 110 are discovered but not actually studied, or we can say finalized, as actual elements? You might be wondering now what trash we are trying to pass to you we are just trying to tell you that the knowledge of scientist on the elements above 110, is vague…!

The last few eight elements have been named according to their atomic number. The procedure of their classification is.

- First word always is 'un' meaning
- Second word is also 'un'
- The third and the little tricky part is:-
  a) if it is 0 - Nilium comes
  b) if it is 1 – Unilium comes
  c) if it is 2 – Filium comes
  d) if it is 3 – Trium comes
  e) if it is 4 – Quadium comes
  f) if it is 5 – Pentium comes
  g) if it is 6- Hexium comes
  h) if it is 7 – Septium comes
  i) if it is 8 – Octium comes

Now if the atomic number is 114 you will name it un-un-quadium, joined it comes as ununquadium.
Finally, coming to the actual point, all things above have been passed on to you to tell that the 112th element has been confirmed by the IUPAC (International union of pure and applied chemistry)
Ununtrium has now become a finalized element on 11th June, it has an atomic weight of 277 becoming the heaviest element in the periodic table. It was discovered at The GSI HELMHOLTZZENTRUM, in DARMSTAD.

-By Girish and Anil Kumar

AIDS IN BOTSWANA

UNTIL recently Botswana was known as the country with the highest rate of HIV/AIDS in the world. In 2004, it was estimated that 3,00,000 people in Botswana where HIV positive with nearly 40% of the 15-49 age group infected. As a result life expectancy is like to drop from 67 to 47 years by 2010, with a serious negative effect on the economy if the country.
In response of the growing crisis, the Botswana government has become the first country in Africa to introduce widespread anti-under a program named 'Masa' which means 'new dawn'. Three drugs and counseling are provided in four priority areas, including targeted include all those with AIDS-related illness, pregnant women, and children older than six months.

Despite the existence of Masa, people in Botswana are still reluctant to know their HIV status. According to official estimates, 110000 people are eligible for treatment, yet only 5000 are actually on treatment. A very sad sight of humanity was that, all this was due to ignorance and fear. Friends its time to take a step forward, lets join hands to eradicate AIDS

- S.Adityan

Numbers

Numbers are how we store information about amounts. They also let us calculate. The abacus is a very ancient adding machine. It uses a series of sliding beads to count, and it is still used today in some countries. Numbers can be fun! Many games use numbers to count scores and to have fun with your skill and luck. Card and dice games have been played for 100 years and are still popular any number between 10 and 99 when written three times, can be divided by 7 to give a whole number as a result. For example, 121212 divided by 7 = 17316.

-Pushpak and Suraj

‘G’ for genius

He won the Nobel Prize for medicine in 1968, for my work on DNA and the human gene. - Hargabind Khurana

She was the Nobel Prize in 1979, in recognition of my selfless and devoted efforts to the cause of humanity. - Mother Theresa

Along with William A Fouler, he was the Nobel Prize for physics for my ‘theoretical studies of the physical processes of importance to the structure and evolution of stars’
- Chandrashekhar

He was awarded the Nobel Prize in economic science for his contributions to welfare economics and interest in the problems of poverty. - Amarthya Sen

“Fact factory”

Infact!

-Head lice are produced from sweat and dirt.
-A cobra dances to the music of a snake – charmer’s pipe.
-Growing wings in ants is a sign of their approaching death.
-The “Dumui” snake has two mouths – one at the front end and other at the tail end.
-A biologist would say ‘NO ’to all these.

Do you know?

1. Longest bone – thigh bone
2. Largest endocrine gland – thyroid
3. Largest gland – Liner
4. Largest Body muscle – Buttock muscle
5. Largest artery –Abdominal aorta
6. Largest nein – Inferior Vena Cava
7. Longest cell – Neuron (nerve cell)
8. Smallest bone – Stapes (ear ossicle)
9. Smallest muscle – Stepedins in the body
10. Smallest WBC – Lymphocytes
11. Total no. of bones – 206
12. Total no. of muscles – 639
13. Breathing rate – 16 – 20 per min
14. Pulse rate – 72/min
15. PH of gastric juice – 1.4
17. PH of urine – 7.35 – 7.45
16. PH of blood – 6.017. PH of urine – 7.35 – 7.45
18. PH of bile – 7.5
19. PH of pancreatic juice - 8.5
20. Blood clotting time – 2.5 min
21. Gestation period – 9 months (253 – 266 days)

THE INCOMPLETE MIRACLE

The most astonishing thing about the Large Hadron Collider (LHC), the ring-shaped particle accelerator that revved up for the first time on September 10 in a tunnel near Geneva, is that it ever got built. Twenty-six nations pitched in more than $8 billion to fund the project.

Then CERN-the European Organization or Nuclear Research – enlisted the help of 5,000 scientists and engineers to construct a machine of unprecedented size, complexity, and ambition. Measuring almost 17 miles in circumference, the LHC uses 9,300 superconducting magnets, cooled by liquid helium to 1.9 degrees Kelvin above absolute zero (-271.3°C), to accelerate two streams of protons in opposite directions. It has detectors as big as apartment buildings to find out what happens when these protons cross paths and collide at 99.999999 percent of the speed of light. Yet roughly the same percentage of the human race has no idea what the LHC's purpose is. Might it destroy the earth by spawning tiny, ravenous black holes? (Not chance, physicists say. Collisions more energetic than the ones at the LHC happen naturally all the time, and we are still here.)

In fact, the goal of the LHC is at once simple and grandiose: it was created to discover new particles. One of the most sought of these is the Higgs boson, also known as the God particle because, according to current theory, it endowed all other particles with mass. Or perhaps the LHC will find "super symmetric" particles, exotic partners to known particles like electrons and quarks. Such a discovery would be a big step toward developing a unified description of the four fundamental forces – the "theory of everything" that would explain all the basic interactions in the universe. As a bonus, some of those supersymmetric particles might turn out to be dark matter, the unseen stuff that seems to hold galaxies together.

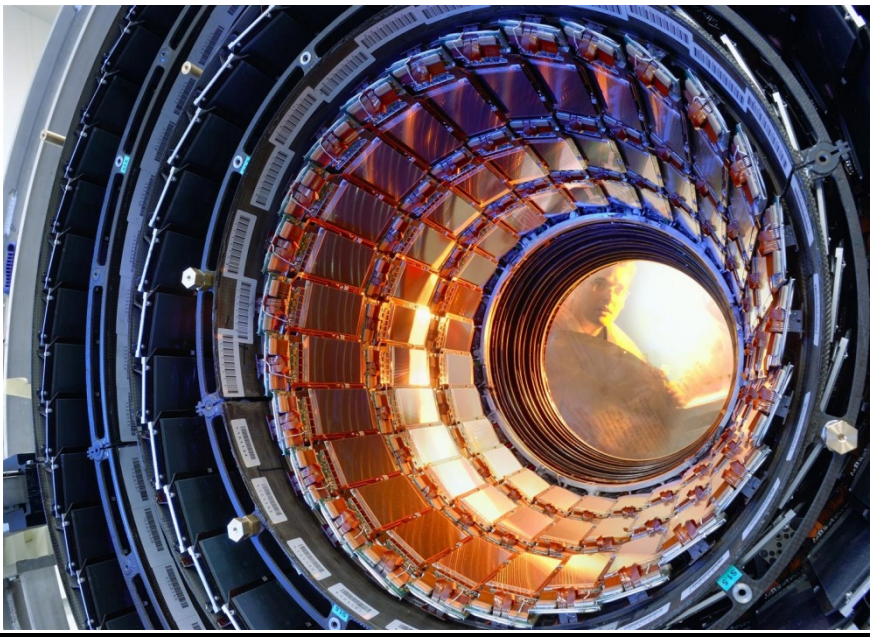
To the uninitiated, all this talk of new particles can be baffling, admits physicist and Noble laureate Frank Wilczek of MIT, "there are a lot of particles already", he says. "it becomes a long shaggy-dog story with a lame punch line. Who cares?" A better way to appreciate the importance of the LHC, Wilczek suggests, is to remember that, according to quantum mechanics, those particles are also waves on a sea that pervades the universe-and we are like fish in that sea, slowly cottoning to what's around us. "The equations tell us that what we perceive as empty space is in fact not empty", Wilczek explains. "It's a material that changes the way things behave. We're embedded in this medium, we know it's there, but we don't know what it's made of. The LHC is the instrument that's going to tell us."

The questions may seem recondite, but the answers matter crucially. If there were no Higgs field, electrons would have no mass and atoms would have been infinitely large. In short, our world would not exist. The LHC may help explain why it does.

When protons start colliding in the LHC-in the test run in September, they ran just one way around the track-they will each carry no more energy than 14 flying mosquitoes, but this energy will crammed into a space one trillionth the size of a mosquito. The concentrated energy will be like a rock dropped into the quantum sea. The resulting ripples will stir up new particles.

First, though, CERN physicists have to get all the parts of the world's most complicated physics machine working correctly. On September 19, nine days after the champagne flowed in the LHC control room, a faulty electrical connection between two magnets caused a helium leak that put the whole device out of commission. As a result, accelerator, already a year late in starting may not create its first collisions until this winter.

-E. Anmol, L. Harshin (XII-SCI.)



Who am I?

Hello everyone
Here I am to check your knowledge
I give you problems to solve, which can solve your problems in life
I am one of the most important subjects in your life
I come to you wherever you go even in a small retail shop you need me
And undoubtedly even in Vijay Mallya's office

Some of you get attracted towards me.
But some of you get nightmares because of me.
You find me in Addition
You find me in Subtraction
You find me in Multiplication
You find me in Division
You find me in Algebra
You find me in Geometry

I can be your favorite subject, if you work hard.
Guess! Guess! Who am I?

-Barkha (IX-A)

World of Math

We all know mathematics is a very interesting and intriguing subject. Many mathematicians world wide have made a lot of discoveries, proved a huge number of theorems, and have also deduced many amazing results. Mathematicians also wanted to have some fun. Therefore they wrote proofs for 2 = 1 obviously they had some errors and these are called fallacies.

- Sanjana B (VIII-B)

Simple Difficulty

Algebra gives us a solution,
Which cannot be made a dilution.
Not even as a solution,
Because it itself is a solution.

It is a non-stop clock,
Which never gets blocked,
It's a bit difficult,
But not clinical (because it comes under Bi.Pc.)
"So think Math's is a game in life and take it lite!"

- Raj Sanjay Ballal (VIII-B)

Physics

Physics was earlier called phusikes,
For example, Bryophyte is Mass.
Heat, Light and Sound are forms of energy,
Which we ought to use safely.

Albert Einstein was a great Physicist,
In terms of inventions Edison had the longest list.
C.V.Raman was a Nobel Laureate,
We haven't won this prize for chemistry till date.

We also experience eclipse.
Energy conservation is an essential topic.
Everything is made up of matter and also has a creator.

- D Sairam (VIII-B)

Infact!

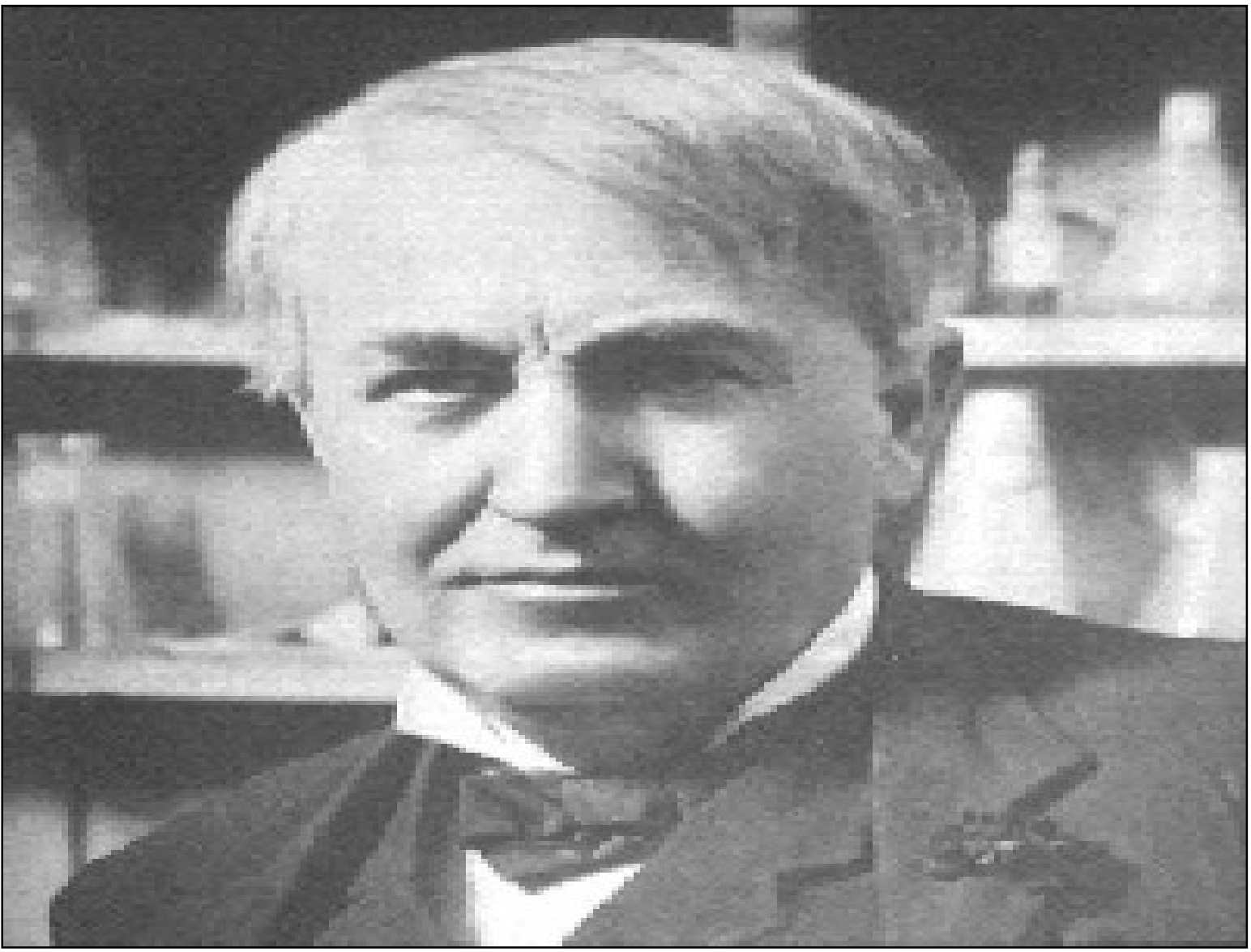
Sea horses – marine form. The male carries a pouch in its belly where the eggs incubate. The female carries her eggs to this pouch where young ones developed thus the young ones of sea horses born from the father and not from the mother

Shocking personality

Thomas Edison

Electricity is the most important thing, are ever in world. Thomas Edison has invented the electric bulb. He was born in Milan an 11th February 1847. When he was twelve years old, he got a job of selling magazines, newspapers and candy on the trains.

In 1871 Thomas Edison opened a factory and laboratory in New York. In the period between 1878 & 1880, Thomas and his associates worked an hundreds of ideas to develop a lamp that used electricity to heat a filament. He wanted to invent small electric light bulbs. Thomas Edison was the most famous inventor of his time.



In the ‘Sub’

Submarine is in the shape of a Blue shark. There hallow place in the submarine and pipelines connected through it into the water. When the submarine absorbs the water through the pipe lines to the hollow place it becomes heavy and sinks. When it releases the water through the pipelines it becomes light and floats on the water. Same as the air filled balloon which float on water and a balloon with out air is filled with water sinks.

-Vinay Chandra (VII-A)

Hippo-cycle

A hippopotamus is born under water. A baby hippo, which weighs about 100 pounds, is called Hippo calves (babies). They are ------, both under water as well as land for a year. Then they are not given their mother’s milk but remained with their mothers until they turn eight.
The hippo can even breathe and see while its body is under water because its nose, ears and eyes are on the top of its head, which always remains afloat.
Hippos are excellent swimmers and can hold their breath for live minutes of a stretch. Hippos can even walk under water along the bottoms of river and lakes. Male hippo weighs 6,000 pounds while a female hippo weighs 3,000 pounds. They can run at an amazing speed of 30 miles per hour.

-Udesh Debata (VI-B)

Sensing Electricity

Sharks have a special sense which allows them to detest weak electrical signals. These are given off naturally by the muscles of their prey and travel well in water. A shark uses tiny sensory pits in skin of the snout, called ‘Ampulle of Lorenzini’, to detect the electricity. Other water living animals can also detect electricity, including elephant snout fish and squid. Electric cells, electric rays and electric catfish can also make powerful bursts of electricity to stun their prey.

- Vamsee and Saiteja (VII-A)

Math Puzzle

You should write 1 to 25 nos. in the below boxes, in such a manner that if we add the no. horizontally and vertically the answer should be same.

Sol. You should writing numbers from the middle and go cross.

14	10	1	19	24
9	5	18	23	13
4	17	22	12	8
15	21	11	7	3
25	15	6	2	20

You can also do this puzzle by making boxes like 3 x 3, 7 x 7, 9 x 9, etc.,

- Sai Rohan M and Pratheek M (VII-A)

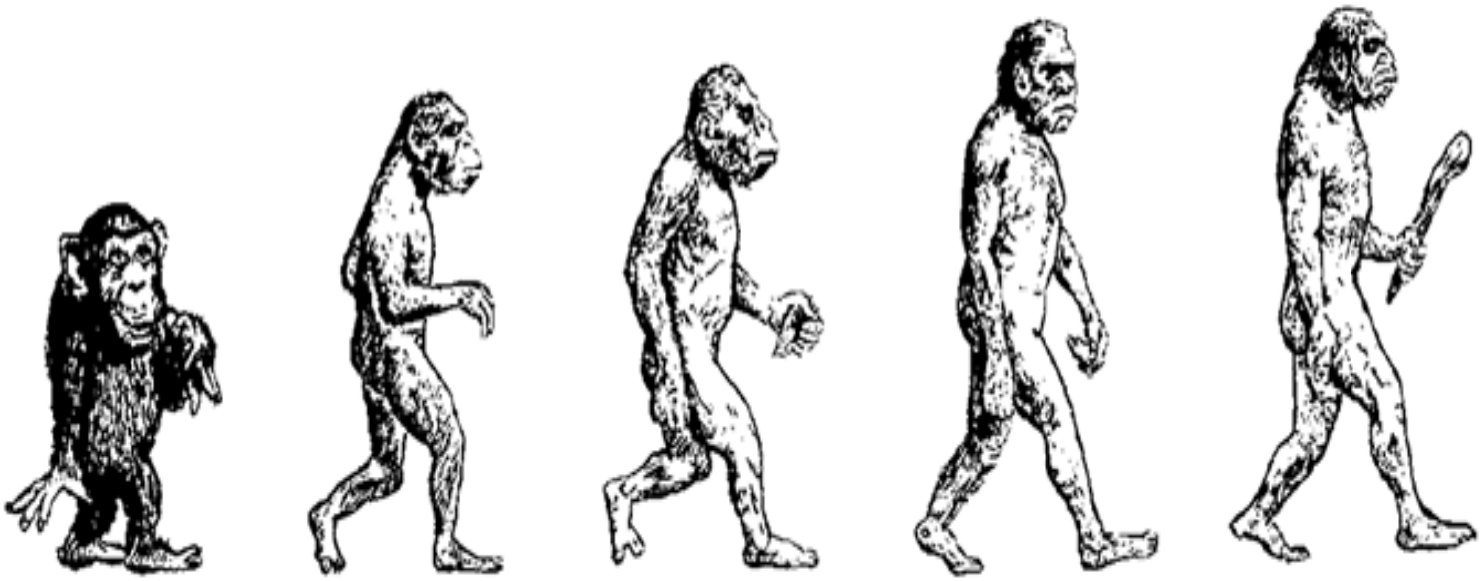
Milestones in Human evolution

It was ages ago since the human evolution, to know more here are the detailed milestones.

7.2 – 6.9 million years ago- Sahelanthropus tchadenisis is the oldest know human ancestor.
It was discovered in CHAD, in the year 2001
5.8-5.2 MYA - Ardipithecus kadabba, discovered in the year 1992, in Ethiopia.
4.4-4.2 MYA-Ardipitheus ramidus, discovered in the year 1992, Ethiopia
4.2-3.9 MYA- Australopithecus anamensis, it was found in the year 1965, in Kenya. The species till 4 had the brain size of 340 -360cc.
3.9-2.9 MYA- Australopithecus afarensis, it was found in the year 1974, in Ethiopia. This artifact became so important due to the bipedal upright walk it showed. It was nicknamed Lucy. This 5 specie had a brain size of 375-500cc.
3.5-3.2 MYA- Kenyanthropus platyos, it was found in the year 1999, in Kenya.
2.7-2.4 MYA- Australopithecus africanus, it was found in the year 1924, in south Africa.6&7 had the brain size of 428-625cc
2.6-2.4 MYA-Australopithecus garhi, it was found in the year 1999, in Ethiopia.
2.6-2.2 MYA: Paranthropus aethiopicus, it was found in the year 1985, in Kenya.This was another marks in human evolution since:-
-Paleolithic tools appear
-Rainforest started to decrease.
2.5-1.9 MYA-Home rudolfensis, it was found in the year 1972, in Kenya
Here, we could see the brain doubled and the frontal lobe expanded, [Frontal lobe is where humans male decisions] 8 to 10 have the brain size of 526-775cc.
2.5-1.6 MYA- Home habilid, found in Tanzania in 1962, was Nicknamed Handy man due to association with tools. Its brain size was up to 1,100cc.
11-14 have brain size up to 1,100cc.
1.9-1.4 MYA- Homo ergastor found in Kenya in 1984cc
1.8MYA-20,000- Home erectus, found in Indonesia, 1891.They were possibly the first hominids to leave South Africa.
600,000-400,000- Home heidelbergensid found in Germany in 1907.
May have buried the dead and acquired primitive language.
15-16 have brain size up to 1,300-1,500cc.
250,000-30,000: Home neanderthalensis found in Belgium in 1829.
230,000-today: Home sapiens found in Ethiopia in 2003. Earliest known cave paintings dated 32,000 year ago.

(Turn overleaf for illustration)

-by Anil & Girish



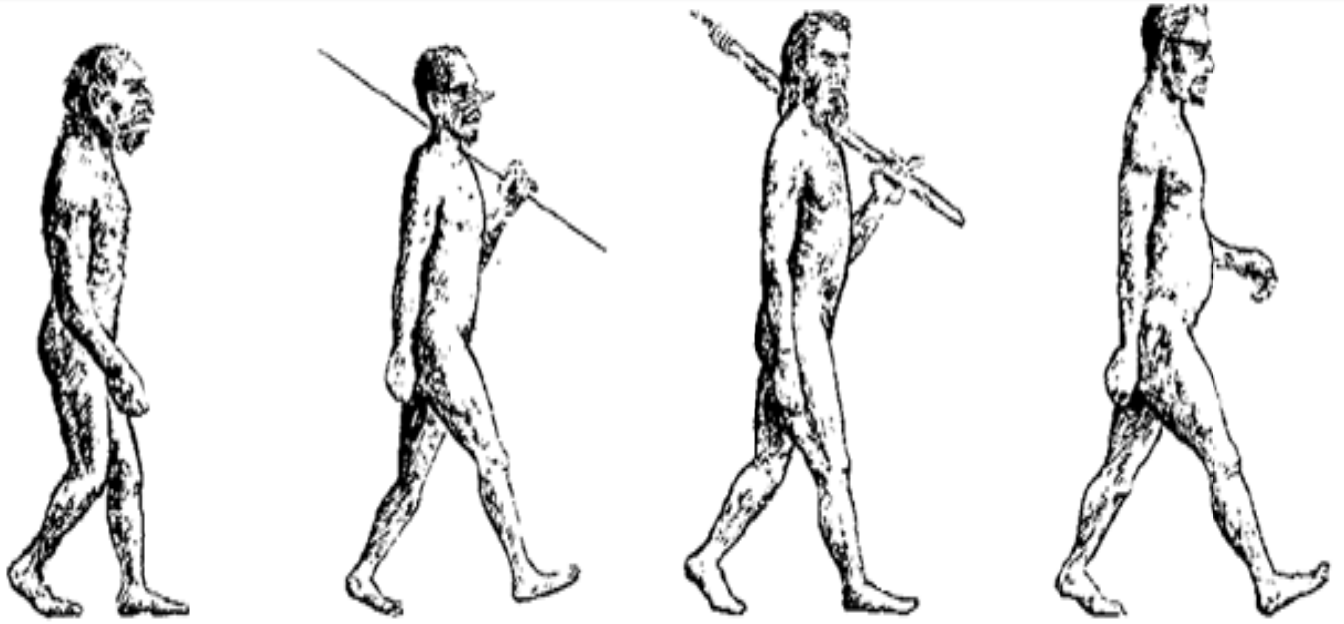
LUCY
Nearly all experts agree Lucy was just a 3 foot tall chimpanzee.

HEIDELBERG MAN
Built from a jawbone that was conceded by many to be quite human.

NEBRASKA MAN
Scientifically built up from one tooth, later found to be the tooth of an extinct pig.

PILTDOWN MAN
The jawbone turned out to belong to a modern ape.

PEKING MAN
Supposedly 500,000 years old, but all evidence has disappeared.



NEANDERTHAL MAN
At the Int'l Congress of Zoology (1958) Dr. A.J.E. Cave said his examination showed that this famous skeleton found in France over 50 years ago is that of an old man who suffered from arthritis.

NEWGUINEA MAN
Dates way back to 1970. This species has been found in the region just north of Australia.

CROMAGNON MAN
One of the earliest and best established fossils is at least equal in physique and brain capacity to modern man… so what's the difference?

MODERN MAN
This genius thinks we came from a monkey.

"Professing themselves to be wise they became fools."
(Romans 1:22)

“Fact Factory”

Microfacts

-Your body has 10 times more bacterial all than human alls.

-Can’t catch them, either whipping their tails, E.Coli can travel 25 times their our length in 1 second equivalent to horse running 135 miles per hour.

-Bacteria have even set up permanent camp inside our cells. Mitochondria, the power houses that supply energy to every cell in body, are the descendants of bacteria that were engulfed by larger microorganism billions of years ago.

-Floating bacteria are extremely effective at spurring condensation, leading to snow and rain some scientists propose spraying bacteria into the clouds to end droughts.

-Another species, deinococcus radiodurans, can suovive almost 10,000 times the doss of radiation lethal to humans, making it a prime candidate for the cleanup of nuclear waste.

-A bacteria called falstonia metallidurans can turn dissolved gold into solid nuggets.

-Another interesting, thing is that by programming instructions into their genes, scientists have engineered E.Coli that act like computers, assembling into glowing bull’s-eye shapes on command.

Infact

-Like some birds a number of fish can change colour as well. Flatfish, such as plaice and flounder, can match their colors to those of the sea bed.
-The bluefish hunts in schools; they may extend up to 7 kilometers (4 miles) in length. -This vicious predator has earned the nickname ‘sea piranha’, because of its similar appearance and behavior to the Amazon freshwater piranha
-After laying an egg, the albatross stretches up the earth around it, is forming a protective ring.
-Weaver birds take great care to weave their beautiful rests, which hang from tree branches.
- The shortest complete sentence in the English language? “Go”
- A person affiliated with hexadectylison has six fingers on six toes on one or both hands feet.
- It’s impossible to lick your elbow. (Try it out!!)
- Sailor, dead leaf, Paper kite, Blue striped crow, Julia, great egg fly!! Wondering what these names are? (‘Names of butterflies!!’)
- The fastest quick-colour-change animal is the cuttlefish (cousin of squid). In a second its whole body can go from almost white or black or yellow, blue-grey, reddish, even striped!

Microfacts.

-All the Bacteria lined up end to end, they would stretch some 10 billion light years – literally from here to the edge of visible universe.

-And there are always more on the way. Pseudomonas, an ocean dwelling bacterium, can go from birth to reproduction in ten minutes flat. In 5 hours a single cell could theoretically give rise to more than 1 billion offspring.

-Most bacteria are yet to be identified. In 2003 geneticist J.Craig Venter began trolling the high seas and analyzing water on his first trip he fished out more than a million never-before-seen bacterial genes.

WATER A WONDERFUL LIQUID

Many people spend a lot of their money on cosmetics in other words they spend their money on beauty products. But what most of people do not know is that you can get a perfect product free of cost and which is far more effective than any other beauty product. Yes, the answer to many people's surprise is water. Water is thus, a wonderful liquid.

It has many benefits some at which are it makes your skin look less blotted, flushes away excess waste, it improves your skin tone almost overnight. Drinking 2-3 lit. of water daily has shown to improve your skin tone a lot. Further more drinking water does not lead to fluid retention which is relief to many cells. Since, it was believed drinking water increases weight. Lastly, it is a life saver for serious calorie counters or people who diet. These people have found out that 2-3 glass of water before a meal helps to suppress hunger therefore, I concluded that water indeed is a wonderful fluid.

-Akhilesh & Abhishek, Xi science

GLOBAL WARMING

EARTH UNDER GREEN HOUSE, ARREST GAS

Have you ever seen any a city? If you have seen then I am 100% sure that you will understand what Global Warming is doing to our Earth. In short words put global warming is melting of our ice caps, destroying our natural habitat. And irony of this all, is that the people who are responsible for this phenomenon are humans, even through being the most superior race on this planet. But more than that, the people who are responsible for this problem (hazard) are actually aware of what they are doing and what price the future generation would have to pay for their present callousness.

If we as individuals and students want to sustain our physical and natural heritage, than the only way is to spread awareness among all. Many people might think that what difference will it make if the common people are being made aware? Well, if we simply add even a little change in the way how people think, it can make a lot of difference in the way they act.

Its not that people are not aware, it's just that being aware is not enough. We must act, how I would like to quote that 'Late Realization will not Help at All' And Earthlings remember, nature never abandoned man, it was man who abandoned nature.

-

Priyanka, XI Science

Bag of life

It is the method which is followed in European countries in which there is no facility of plastic bags because it pollutes the environment and it is a non-biodegradable product.
These countries have come up with a solution where the public is provided with a bag called 'THE BAG OF LIFE'. This bag is made up of extract of waste cardboard, tin, cans, plastic bottles and cow dung to make the bags last for longer period of time. It is very strong.
I think this method should be followed in India to protect the environment and to cut down the usage of plastic bags.

"SAVE OUR MOTHER EARTH''

-By Vaibhav

Snakes

It is hard to mistake a snake has no legs.
Snakes are hunters they have long teeth for grabbing prey. But these reptiles cannot chew – they must swallow their food. There are almost 3,000 kinds of snakes and apart from the icy solar regions, they live all over the world – even in the open ocean. Less than 30 types of snakes are truly deadly to people poisonous snakes, such as this cobra, use their venom to kill or quienten prey, so it cannot run away after being swallowed. Cobras, kraits and mambas have their poison – jabbing bangs near the front of the mouth. Big pythons and boas can swallow prey as large as wild pigs and small antelopes – including the horns! Rattle snakes are hit-vipers and have pits under the eyes. The snake can catch a warm-blooded victim like a mouse even in complete darkness.

(Turn overleaf for illustration)

- Varun Daiya and Karthik J (IX-A)


SMOKEY
Snakes alive!

The budding children of mother earth on Environmental Day

"Break the rules" a new mantra which the generation has taken up "This was my thought till 5th June but now I know not only young and old even teens and youths care for this changing environment and I witnessed this on 5th June at NTR Gardens, Hyderabad.

As part World Environmental Day celebrations we attended the function conducted by WWF India which had a lot to do with competitions, presentations and shows. But the best part I liked was the presentations of stall.

WWF India has called upon all the schools, NGOs, Corporate Sector and Governmental organizations to display their eco-buddy nature. In schools category various school like Nasr School, Singineri School, etc including our school participated and displayed there eco-buddy techniques and there activities. Every school had something special and something innovative to do and show like paper bags, wealth to waste, recycling garbage etc.
In corporate sector category we had various corporate giants from twin cities such as 'CII-Sohrabji Godrej Green Business Centre', Hyderabad whose concept of green building and use all our renewable resources to its fullest without any wastage was quiet interesting.
New ventures India is a centre of sustainable entrepreneurship, specially designed to meet the needs of Indian sustainable and eco-friendly entrepreneurs, which enlightened about various eco-buddy companies and products.
Forum for sustainable development enlightened about water conservation while 'Nexgen Led Lights Private Ltd' had new way of Green peace technique. 'The LEDs Sintex Industries Ltd.' had an innovative idea of plastic dustbins, 'Global Telelinks' came up with 'Prakruthi Power-a high powered LED lamp' with various facilities and power saving techniques.
In government sector category Andhra Pradesh state biodiversity board displayed the wide range of diversity in the state while Andhra Pradesh Industrial Infrastructure Corporation Limited and Advisory Services in Environmental Management came up with the project of eco-industrial parks. 'The institution of engineers' came up with energy conservation mission with various down to earth measures.
In NGO's category WWF India displayed there activities and awareness campaigns. "Water Hyderabad" a initiative to reconstruct the ground water levels in twin cities was another fascinating and mind bobbling stall. Even others like 'Blue Cross of Hyderabad', 'Climate Solutions', 'Ridhi Foundation' & 'Thrive' had something very useful and important.
But in these entire stalls the persons who were propagating it where youths and teens. This shows that techno-buddies are now changing to eco-techno-buddies. This inspired me to even join them and successfully propagate the Green Peace all over the world to bridge the gap for a healthy living. Really this was the first time I ever enjoyed the world environmental day to its fullest. Really our Mother Earth will be very much happy with her budding children working for her betterment.

Fascinating facts

-Mosquito has 47 teeth.
-Some of dinosaurs were as small as hens .
-Rain water contains vitamin- $B_{12.}$
-A new born kangaroo is about one inch long.
-Saccharin is 675 times sweeter than sugar.
-Cornea of the eye has no blood supply if taken in O_2 directly from the air
-Elephant is the only animal which has 4 knees.
-Human brain stops growing in size at the age of 15.
-Human body takes about 48 hours to completely digest the food from one meal.
-Your voice is as distinctive as your finger prints no one else in the world has the same voice as yours.
-The earth worm has a life span of 10 years.
-The surface area of lungs is roughly the same as that of tennis court.
-Every human is color-blind at birth.
-The highest recorded “sneeze speed” is 165 km per hour.

Environmental calendar

World Forestry Day: 21st March
Earth Day: 22nd April
World Ozone Day: 16th September
World Animal Welfare Day: 4th October
World Health Day: 7th April
World Environment Day: 5th June
Green Consumer Day: 28th September
World Wildlife Week: 1 to 7 October

Paper Production

To make paper, woods, logs are fed into a barking drum, which takes off the bark. A chipper cuts the logs into chips. The chips are washed and heated with chemical in a digester to make a pup. Then a refiner with spinning disks breaks the pulp down into fibers. Next, washers raise the chemicals from the pulp. The pulp is then squeezed through screens that remove waste materials. The clean, wet pulp flows into a head box. The pulp is spread across a moving screen called a wire. Water is sucked out of it, leaving a mat of pulp. The mat passes between rollers the squeeze out most of the water steam-heated cylinders dry it. The dried sheet is smoothed between the cylinders of a calendar stack. Finally it is wound onto a giant roll on a paper real.

- Sarthak Agarwal (VIII-A)

Environment

Environment is considered as nature,
Where there are many creatures,
With there special features.
Some are big, and some are small, some creep while some crawl.
We should not pollute the nature,
As it is our treasure,
And it reflects our future.
So, I thank nature, to give such wonderful creations.

- Abhijit P Choudary

Space Facts

- India launched 10 satellites in 1000 seconds which had turned into a world record
-The TaurusXL rocket carrying the orbiting carbon observatory blasted off at 1:55 am at the Pacific Standard Time from this Air Force Ball which has a halting launch.
- The US Fermi telescope had detected a massive explosion in space which is the biggest gamma-ray burst every detected. The blast produced energy 3,000 times more than five billion times that of visible light.
- NASA's messenger spacecraft make historic mercury fly by.
- Taikonaut Zhai Zhigang starts China's first space craft.

Wildlife Sanctuaries

Name: Sunderbans National Park
State : West Bengal
Protected animals : Royal Bengal Tiger

Name: Bandipur National Park
State : Karnataka
Protected animals : Indian Elephants, Gaur

Name: Manas National Park
State : Assam
Protected animals : Rhinoceras, wild Buffalo

Name: Velvadar Blackbuck sanctuary
State : Gujarat
Protected animals : Blackbuck, Blackdeer

BIOLOGY

Biology? What is that word biology?
I wondered and wondered.
Days and Nights I wondered.
What is actually Biology.
Then I asked my biology teacher that what Biology means.
Then by teacher told Biology is the study of living
organisms the life processes respiration and all such difficult
terms but I couldn't get it then my teacher told about my own body that how
it is related to biology and then I told that I love Biology.

BARKHA – IX A

Puzzle

E	R	I	B	O	S	O	M	E	S
N	U	T	E	R	U	S	P	R	A
D	X	S	N	A	P	O	R	A	X
O	O	Q	T	H	Y	R	O	I	D
C	N	U	O	A	B	Y	D	D	E
R	P	I	X	D	C	Z	S	S	N
I	I	N	I	A	L	H	M	E	P
N	N	T	N	C	O	A	I	O	R
E	N	V	N	T	N	I	X	A	O
E	A	R	A	H	E	R	Z	D	N

1. The tube which equalizes the air pressure in the middle and external ear
2. Where are the dead cells accumulated in the body
3. Name the defect in which cross eye and wide eye can be seen
4. The external ear consists of a projecting part called
5. Calcitonin is secreted by
6. Name the hormone which initiates the activity of adrenal cortex.
7. Name the part of cell responsible protein synthesis
8. Part of eye which is very sensitive to low levels of illumination
9. The ductless glands which secrets hormones
10. A population of organisms derived by asexual reproduction from a single individual is called
11. The muscular organ in which mammalian embryo develops
12. The harmful disease that affects the body ability to fight against infections
13. Oval window is a part of which sense organ
14. The branches of cyton which receives and transmits nerve impulse
15. A poisonous protein released by pathogenic bacteria.

Food facts

-In every one minute 21,000 pizzas are baked

-Every one minute 2,137 pounds (971.4 kg) of popcorn are being eaten.
-In the united status, 18,315 pounds(8,325) kg of food being thrown away every minute.
-Americans are eating 173 lobsters every minute.
-Americans are drinking 208, 333 cups of coffee every minute Americans are consuming 286, 172 gallons (1,081, 730 lts) of soda a minute.
-Approximately 5,723 candies are made each minute.
-People are spending $954 on chewing gums every minute.