Chairman’s Note

My Dear Students,

Among the 84 lakh species of living beings, human being stands out unique, special and extraordinary, owing to his reasoning, logical thinking, analytical, comprehension skills and more than anything, his capacity to imagine!

Our vision is limited to a narrow bandwidth, our audibility is limited to a small bandwidth and capacities of our senses are greatly limited. Despite all these limitations, human being is able to climb the top of the evolution ladder. All these are possible because of his skills and intelligence.

There is a budding scientist in every student, who is highly inquisitive and curious about various things happening around him. This curiosity should move us to the next stage of experimentation, observation, analysis and comprehension.

I am sure that ‘Vagdevi Vilas Vignan Patrika’ will kindle the scientific spirit in every student and help to transform into a budding scientist.

I congratulate and thank all those who have contributed to this news bulletin.

– K. Harish
Chairman, Vagdevi Vilas Institutions
Editor’s Note

We are very happy to present the October ’15 issue of our e-Science Magazine. We have attempted to showcase events and happenings in the field of Science across Vagdevi Vilas Institutions. It may not be out of place if the Heads of the Institutions are reminded to encourage their teaching staff and the students to write interesting articles on Science, collect scientific information from various fields, experiments held in Science across the globe. We wish to receive more such mind blowing articles based on science in future.

So, Young Reader! Take your pen and note book, look around for such events and happenings which may keep you thinking and jot out. Make best use of the space provided here.

We wish you good luck!

- R&D Department
  Vagdevi Vilas Institutions

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Without the earth, we have nowhere to live, along with many other organisms. What are we doing to protect our surrounding? Garbage heaps are increasing, people are becoming insensitive to plants and animals, thereby harming our ecosystem. We must make conscious effort to conserve the world’s plants and animals. Plants are first in importance in the food chain of which humans also form a part. As one of the most esteemed institute of Bangalore, Vagdevi Vilas School makes students and citizen aware of the importance of saving the environment. Do not misuse precious water and electricity. Do not use plastics as much as possible. As a part of the ‘Conserve My Planet’ project organised by Schneider Electric India Foundation with an aim to help people change their life through many activities.

The activities for ‘conserve my planet’ in the month of September, 2015 happened for two days on 14/9/15 and 21/9/15. The projects were ‘Web of Life’ and ‘Green Cop’.
For Vagdevi Vilas School (Varthur) Conserve my planet project happened on 19/9/2015 and 21/9/2015. In Web of Life the green ambassadors formed a food chain. They actually connected themselves using threads which finally resulted in a food web. If one link was broken, the whole web was affected. Students then realised the importance of every link in the web.

Activity: Green Cops
Date: 21st September, 2015
Venue: Pink Petrol Park
School: Vagdevi Vilas School, Varthur
Time duration: 1 hour 30 minutes

Dressed in green with placards bearing messages of conservation in their hands, the enthusiastic Green Cops marched into a petrol pump at close proximity to the school. As a part of the Conserve My Planet project organized by Schneider Electric India Foundation, the students of Vagdevi Vilas School, Varthur took part in the Green Cop activity. The Green Cop activity aimed at informing the members of the society the importance of having pollution-free vehicles.

21st of September was regarded as the Zero Emission Day, and very fittingly the Green Cops activity was conducted on this day.
Any scientist would know the best way to learn science is to do science. Active hands-on student-centred inquiry is at the core of good science education. Concepts used in science grow and develop as early as infancy. Babies explore the world with their senses. Children are born curious and want to know all about their environment. To inculcate inquisitiveness in science R&D Department of Vagdevi Vilas School (Marathahalli) regularly conducts science activities for the students of LKG, UKG, and Montessori section.

Leaves are big, leaves are small, but leaves are everywhere. As they widened their eyes at the fig leaf and squinted at the tamarind leaves, they learnt that leaves come in different sizes. Some are long while some are round. One or many, each leaf is important to the plant. Admiring the beauty of the shoe flower, the little ones learnt all about petals and sepals. Stamen and stigma too followed! And, they also surprised us with the long list of flowers they knew. The little botanists made us all proud again.

Scientists in the offing!

Important days in October

- October 2   World Vegetarian Day
- October 4   World Animal Welfare Day
- October 11  World Allergy Awareness Day
- October 12  World Sight Day
- October 16  World Food Day
- October 28  World Rabbies Day

“It's not that I'm so smart. It is just that I stay with problems longer.” –Albert Einstein
Alfred Bernhard Nobel was born on 21 October 1833 in Stockholm, Sweden. He was the fourth son of Immanuel Nobel, an inventor and engineer, and Carolina Andretti Nobel. Following various business failures, Nobel's father moved to Saint Petersburg in 1837 and grew successful there as a manufacturer of machine tools and explosives. As a young man Nobel studied with chemist Nikolai, then in 1850 went to Paris to further the work and at 18 he went to the United States for four years to study Chemistry, collaborating for a period under inventor John Ericsson. Nobel filed his first patent for a gas meter in 1857. In 1864 a deadly explosion killed his younger brother. Deeply affected, Nobel developed safer explosive dynamite. Nobel used his vast fortune to establish the Nobel Prizes, which has come to be known for awarding the greatest achievements throughout the world. He died of a stroke in 1896.

Charles John Pedersen (October 3, 1904–October 26, 1989) was an American organic chemist best known for describing methods of synthesizing Crown Ethers. He shared the Nobel Prize in Chemistry in 1987 with Donald J. Cram and Jean-Marie Lehn. Pedersen was born in Bussan, to a Norwegian father and a Japanese mother, in 1904. He moved to Japan with his family at an early age and entered in Saint Joseph College. He came to United States in 1922 to study chemical engineering at the University of Dayton in Ohio. After receiving a bachelor’s degree, he went to the Massachusetts where he received a master’s degree in organic chemistry. Although his professors encouraged him to pursue a Ph.D. at MIT, Pedersen decided to start his career. He is one of the few people to win a Nobel Prize in the sciences without having a Ph.D.!!!

In 1927, Pedersen began working for DuPont where he would remain for the next 42 years, retiring at the age of 65. At DuPont, his work resulted in 25 papers and 65 patents. In 1967 he published two works that are now considered classics; they describe the methods of synthesizing Crown Ethers (cyclic polyether). The donut-shaped molecules were the first in a series of extraordinary compounds that form stable structures with alkali metal ions. In 1987 he shared the Nobel Prize in Chemistry with Donald J. Cram and Jean-Marie Lehn for his work in this area; Cram and Lehn expanded upon his original discoveries.

Pedersen was diagnosed with myeloma in 1983. He died on 26 October 1989 in Salem, New Jersey.
Sir James Chadwick (20 October 1891-24 July 1974) was an English Physicist who was awarded the 1935 Nobel Prize in Physics for the discovery of the neutron in 1932. He graduated from the Victoria University of Manchester in 1911 and studied under Ernest Rutherford (Known as the “Father of Nuclear Physics”). He worked on various radioactivity problems and was awarded his MSc in 1913. Chadwick earned his Doctor of Philosophy degree under Rutherford’s supervision from Gonville and Caius College, Cambridge in June 1921. He was elected to study beta radiation under Hans Geiger in Berlin using Geiger Counter. He demonstrated that beta radiation produced a continuous spectrum and not discrete lines. In 1932, Chadwick made a fundamental discovery in the domain of nuclear science and proved the existence of neutrons (an elementary particles devoid of any electrical charge). In 1932 he observed that beryllium when exposed to bombardment by alpha particles, released an unknown radiation that in turn ejected protons from the nuclei of various substances. He was awarded the Hughes medal of the Royal Society in 1932 and Nobel Prize for Physics in 1935. From 1957 to 1962 he was a part time member of the United Kingdom Atomic Energy Authority.

Subrahmanyan Chandrasekhar (19 October 1910 - 21 Aug 1995) an Indian-American astrophysicist, best known for his work on the theoretical structure and evolution of stars. He won the Nobel Prize in Physics (shared with William Fowler) in 1983. He was born into a Tamil Hindu family in Lahore in Punjab. His father was an accountant with the Indian Railways. His father's brother was the eminent Physicist Chandrasekhar Venkata Raman who won the 1930 Nobel Prize in Physics for his work on the Scattering of Light and the discovery of the Raman Effect of the Scattering of Photons. He attended the Hindu High School in Triplicane near Madras from 1922 to 1925. He studied Physics at Presidency College in Madras from 1925 to 1930. He was awarded a Government of India Scholarship to pursue graduate studies at the University of Cambridge, England. He was admitted to Trinity College and became a research student of Professor Ralph Fowler. He also spent a year at the Institute of Theoretical Physics in Copenhagen and worked with Niels Bohr. In 1933, he was awarded his PhD at Cambridge.

Chandrasekhar Limit: This limit describes the maximum mass of a white dwarf star or the minimum mass above which a star will ultimately collapse into a neutron star or a black hole, following a supernova event, rather than remaining as a white dwarf. His calculations revealed that this was approximately 1.44 solar masses (1.44 times the mass of the Sun).
THE OZONE HOLE

Our Earth is wrapped in a blanket of air called the ‘atmosphere’, which is made up of several layers. About 19-30 kilometres above the Earth is a layer of gas called ozone, which is a form of oxygen. Ozone is produced naturally in the atmosphere.

WHY DO WE HAVE AN OZONE LAYER?

The ozone layer stops too many of the sun's 'ultra-violet rays' (UV rays) getting through to the Earth. UV rays cause our skin to tan. Too much UV can cause skin cancer and will also harm all plants and animals. Life on Earth could not exist without the protective shield of the ozone layer.

WHAT IS THE OZONE HOLE?

Scientists found that every spring (after winter and before summer), a hole as big as the area of China develops in the ozone layer over Antarctica, in the South Pole and a smaller hole over the Arctic, at the North Pole. There are signs that the ozone layer is getting thinner all over the planet. Scientists have discovered that the ozone hole over Antarctica started in 1979, and that the ozone layer generally started to get thinner in the early 1980s. The loss of the ozone layer occurs when ozone is being destroyed than nature is creating.

WHAT CAUSES THE OZONE HOLE?

A group of gases is particularly likely to damage the ozone layer. These gases are called CFCs, Chloro-Fluoro-Carbons. CFCs are used in some spray cans to force the contents out of the can. They are also used in refrigerators, air conditioning systems and some fire extinguishers. They are used because they are not poisonous and do not catch fire. Most countries have now stopped using products that can release CFCs into the atmosphere.

THE OZONE HOLE AND OUR HEALTH

The ozone layer is like a sunscreen, and a thinning of it would mean that more ultra-violet rays would be reaching us. Too many UV rays would cause more sunburn, and because sunburn causes skin cancer, this too would increase deaths. These UV rays are also dangerous for our eyes and could cause an increase in people becoming blind. That is why sun cream and sunglasses are very important.

THE EFFECT OF OZONE HOLE ON ANIMALS AND PLANTS

UV rays can go through water and end up killing small water animals or plants, called ‘plankton’ which form the base of the food chain in oceans and seas. Whales and other fishes have plankton as their main food, and if plankton dies because of these UV rays, whales will start dying too, because they will not have anything to eat. Large amounts of UV rays could damage all green plants. If the ozone layer keeps getting thinner, there could be fewer and fewer plants on Earth and then there would be less food in the whole world.

Millions saw the apple fall, Newton was the only one who asked Why?

Bernard M. Baruch
There are many things we can do to help reduce thinning of Ozone and global warming.

- Use buses and trains instead of cars, as they can carry a lot more people in one journey. This will cut down the amount of carbon dioxide released.
- Electricity/fuel is produced by burning of fossil fuels like coal, oil and gas, which release carbon dioxide, a greenhouse gas. As an individual, you do not have a lot of control on how energy is produced. But, you can definitely control the way in which you use that energy. Using less energy means less of it needs to be produced. So less carbon dioxide is released into the atmosphere.
- Turning off lights when they are not needed and not wasting electricity will reduce the demand for energy.
- Pollution formed indoors can be reduced by ensuring that all gas appliances are working properly. Good ventilation will improve indoor air quality by dispersing biological pollutants like dust mite and other pollutants such as cigarette smoke.
- Other sources of energy could be used which do not emit carbon dioxide, e.g. wind power, solar (sun power) and wave power. In the home and at school, we must learn to use energy efficiently and not waste it.

Together….. let's act ozone friendly, create awareness on **PROTECTING OZONE** and stay sun safe.

*Smt. Anitha Sukhdev*
*Deputy Head,*
*Research & Development Department.*
On 8/9/15 and 9/9/15 we the students of grade VI had a trip to Adamya Chetana Foundation. We started our trip at 8.45 am in our school buses. We were enjoying a lot in the bus. When we reached the venue, we were explained about their project ‘Annapurna’ in which they served mid-day meals to around 70,000 children in 324 schools across Bangalore. Then we were taken to eco-friendly and clean kitchen. The kitchen had 0% garbage! Everything was explained to us. Then we went to the top of the building and saw a video based on two projects ‘Annapurna’ and ‘Aata Pata’ and some information about Adamya Chetana Foundation. ‘Aata Pata’ is a programme in which teachers and students are trained to conduct interactive programmes.

After that we went to the printing press. There we saw many machines and printers including paper cutting machine. We were demonstrated how books were printed.

From there we went back to Adamya Chetana Foundation and had a fresh and delicious meal. After that we boarded the bus and came back to school at about 3:30 pm.

Compiled by
T. Meysakthivelan and Swayam, VVSM (VI-E)
ICE CREAM

Ice cream is so awesome that there is even a proved ice cream diet!

It takes an average of 50 licks to finish an ice cream!

Ice cream is a way to lose weight without any side effects!

Largest ice cream weighed 12,096 pounds!

The major ingredient in ice cream is air!

End of World War II was celebrated by Eating ice cream!

It takes 12 gallons of milk to create one gallon of ice cream!

Math Magic

Your Date of Birth
- Write the number of the month you were born (January = 1, February = 2 and so on)
- Multiply by 4
- Add 13
- Multiply by 25
- Subtract 200
- Add the day of the month on which you were born
- Multiply by 2

Subtract 40
- Multiply by 50
- Add the last two digits of the year of your birth
- Subtract 10,500

What did you get?

The Month, Date and the last two digits of the year of your birth!

- Compiled by P. Balaramakrishna Varma, VIII B, VVSV

“An expert is a person who has made all the mistakes that can be made in a very narrow field”
Niels Bohr
Now You See It, Now You Don’t!

Requirements: Two clear plastic cups, Food colouring (red), Bleach, Water.

Directions:
- Fill one plastic cup three-quarters of the way with water.
- Add several drops of food colouring to the water and mix it up until it is red.
- Fill the other plastic cup one-quarter of the way with bleach.
- Slowly add the bleach to the water mixture.
- Observe what happens.

Observations: As the bleach expands the molecules of dye attached to the water molecules makes the water look clear again.

- Compiled by Swapnil Datta, VII F, VVSM.

A Can That Can “Walk”

Requirements: An empty aluminium can, Tissue paper, Balloon.

Directions:
- Place an empty aluminium can on the floor.
- Blow up a balloon and tie a knot in the end.
- Rub a tissue paper back and forth on the balloon.
- When you put the balloon near the can.
- Observe what happens.

Observations: The can will start rolling toward the balloon.

How does it Work?

When you rub the balloon with a tissue paper, the balloon gets a negative electric charge. When you put the balloon near the can, electrostatic induction affects the molecules in the metal. The outside of the can gets a positive charge, so it is drawn toward the balloon and starts rolling in that direction.

- Compiled by Rito Suvra Ray, VII F, VVSM.
Aloe Vera is a succulent plant, green in colour, with a clear white gel inside. Internally it acts as a general tonic, cleanser and detoxifier. Externally it is used to cure minor burns, sunburn, eczema, psoriasis, cuts, insect bites and for skin care.

**Health Benefits:**

1) For skin- Used as ingredients in skin care products and medicine for the skin. It soothes the skin, hydrates and nourishes it. Drinking aloe Vera juice enhances skin health and give it a glow. Used as good moisturizer and facial cleanser.

2) For hair growth- Massage aloe Vera into the scalp, leave for 30 minutes and rinse. Used to balance pH and stimulate the production of enzymes on your scalp and help in the growth of hair. Used as conditioner and makes the hair silky. Mix aloe Vera into powdered hair dye before dyeing hair to help fight off moisture loss from drying chemicals.

3) For digestive disorders- Aloe Vera juice recommend for disorders of the digestive tract and stomach. Used to cure ulcers, IBS, Crohn’s disease and Celiac disease.

4) To boost immune system- The gel helps to boost immune system function while destroying cancer tumors. Aloe Vera contains acemannan, a natural immune booster. This accelerates the destruction of cancer tumors, improves survival time and recovery from toxic cancer treatments.

5) To reduce inflammation in joints- Used to ease inflammation of joints, reduce arthritis pain. It reduces inflammation throughout the body from inside and out.

6) To stabilize blood sugar in diabetics- Diabetic patients taking aloe Vera juice for 3 months experience a significant drop in fasting blood sugar levels and also exhibit lower cholesterol levels. Aloe Vera gel improves the quality of the blood and helps rebalance the blood chemistry that lowers cholesterol and total triglycerides in people with elevated levels of cholesterol.

7) Aloe Vera gel is also effective in preventing and removing corns as it contains salicylic acid. It is also anti bacterial in nature. Apply the gel twice a day to get rid of corns.

8) For burns- Act as sun burn healing agent. It penetrates and heals the affected area and brightens the skin. Rubbing aloe Vera on your face, decreases pigmentation and dark spots and brightens your skin.

- Compiled by Aditya . S, VII B, VVSM.
A valuable painting was stolen from the Liar’s club, but the police are having a hard time identifying the culprit because every statement made by a member of the Liars’ club is false. Only four members visited the club on the day that the painting was stolen. This is what they told the police:

1. Ann: None of us took the painting. The painting was here when I left.
2. Bob: I arrived second. The painting was already gone.
3. Chuck: I was the third to arrive. The painting was here when I arrived.
4. Tom: Whoever stole the painting arrived before me. The painting was already gone.

Who of these four liars stole the painting?

Fun for All!

Answer (Sept, 2015)

37

Just Try!

Send your answers to:
researchdep.vvi@gmail.com

The Bacteriologist

A scientist is experimenting with bacteria that are one micron in diameter and that reproduce by dividing every minute into two bacteria. At 12.00 P.M she puts a single organism in a container. At precisely 1.00 P.M the container is full.

1. At what time the container half full?
2. How big was the container?