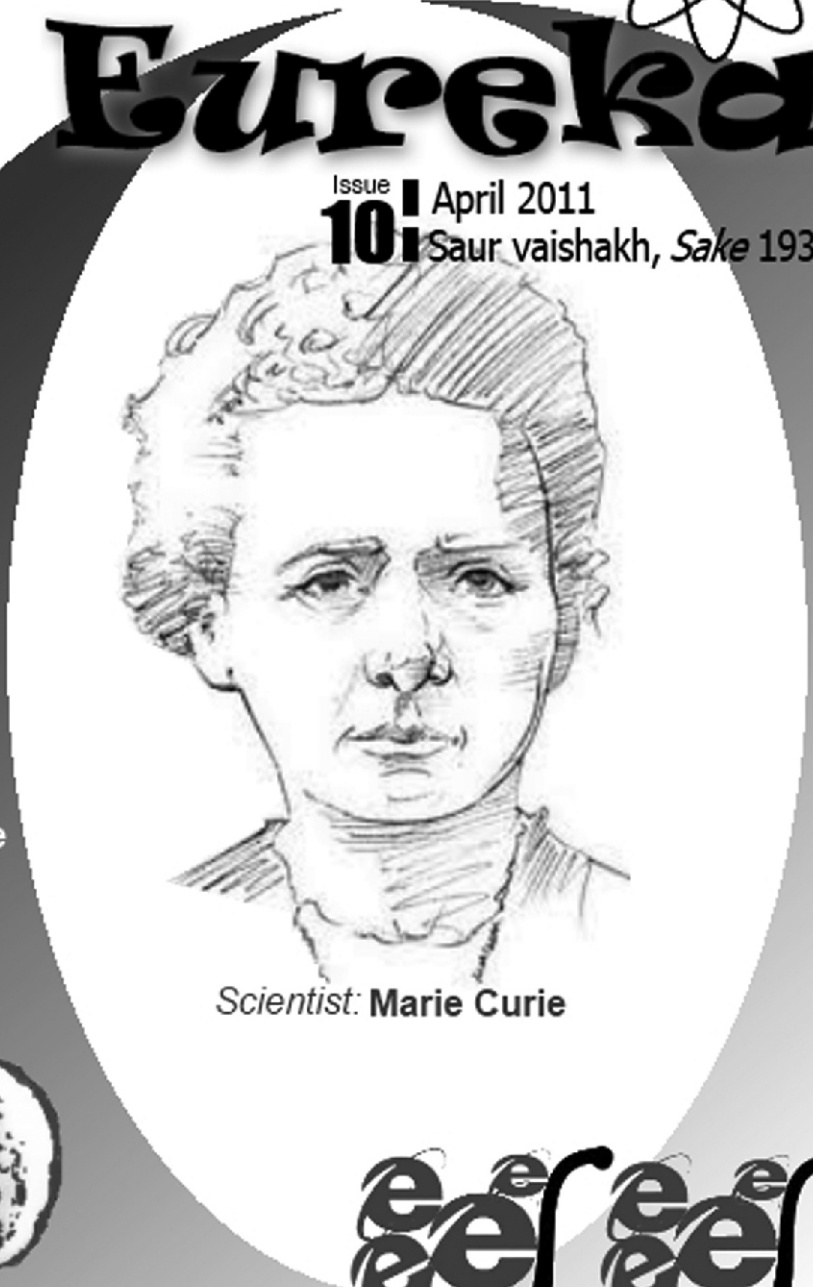




Constellation: Sagittarius

Eureka

Issue 10! April 2011
Saur vaishakh, Saka 1933



Scientist: Marie Curie



Invention: Bicycle



Save Me: Loris



Internet: Online Shopping

Expanding your horizon of Science

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Dear friends, Greetings to you all!

Jnana Prabodhini has long & enduring relationship with the seven sisters in north eastern part of India. Groups of volunteers regularly visit to interact with people. This science magazine is a part of an effort to keep you all in touch & keep this relationship flourishing forever . Editors of Eureka have taken support from free material available on different websites. We are quite eager to know your response. Even you can contribute your articles for this magazine. Send your feed back / articles on science.eureka@gmail.com.

Vivek Ponkshe



Editorial

Eureka

On 11th of March 2011, Japan experienced most powerful earthquake since records began , triggering a massive tsunami. Cars, ships and buildings were swept away by a wall of water after the 8.9-magnitude tremor, which struck about 400km North-East of Tokyo. A state of emergency was declared at nuclear power plants, where pressure has exceeded normal levels.

Indeed the disaster which hit Japan was multi-hazard disaster, much complex combination of earthquake, followed by Tsunami which created havoc of Nuclear disaster.

I was following the course of events with my students . We analyzed the news w.r.t. How Japanese managed the disaster, how they were trained for disaster management. An exhibition on “Japan and Disaster management” was organized to create awareness about disaster management.

Disaster is a sudden, calamitous event bringing great damage, loss, and destruction and devastation to life and property. The damage caused by disasters is immeasurable and varies with the geographical location, climate and the type of the earth surface (i.e. degree of vulnerability). This influences the mental, socio-economic, political and cultural state of the affected area. Generally, disasters are of two types – Natural as and Manmade. Implementation of “Disaster Risk Management Programme” is necessary to reduce the vulnerability of the communities to natural disasters, in disaster prone areas.

Northeast is disaster prone area . Northeast frequently nesses with earthquake, landslides, cyclones and floods. Still we have memories of 1950 Assam earthquake which killed over 1,500 people and triggered a large number of landslides that dammed many tributaries of Brahmaputra River. Landslides and floods are common in states of Northeast India.

Few years back, Prabodhini conduced a workshop on Disaster management at Jairampur, Arunachal Pradesh . The participants prepared disaster management plan of their school and village. Effective warning systems and adequate preparedness to mitigate disaster events is critical to the survival and sustainability of Northeast India today.

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Interesting plants of our region

In previous articles we have learnt about very interesting and most beautiful orchid species of your region. I hope you have observed some of them. Orchid's awesome beauty as well as its unique structure attracted scientists for many years. In India there are many institutions involved in the study of orchids. Climatic conditions and habitat diversity in North East India has favoured the growth of number of orchid species, of which many are endemic to region and rare too. Thus with the main objective to study and conserve this natural wealth some research institutes are established in the North East India. Some important orchid research institutes are accounted below.

Orchid Research Centre, Tipi

Arunachal Pradesh, with its large forest cover, harbours the great floral and faunal diversity that gives this region the status of one of the "Biodiversity Hotspots" in the world. Arunachal Pradesh is known for its rich occurrences of orchids with more than 600 species making the state an "orchid paradise" of our country. In order to develop this natural resource in a sustainable manner, the division of Orchidology (Branch of Biology that deals with study of Orchids) is engaged in scientific studies of Orchids. Realizing the floristic importance of orchids Govt. of Arunachal Pradesh under the jurisdiction of Department of Environment and Forests has established an orchid station at Tipi in West Kameng District. The centre aimed at development in orchid farming and floriculture with people's participation and contributes towards economy of the local people. Significant achievements of ORC are:



- ⇒ Surveys, documentation and habitat studies of about 605 orchid species
- ⇒ Discovering and describing 40 new species, one new genus and 150 new records of occurrence.
- ⇒ Establishment of Sessa Orchid Sanctuary -100 sq.km for *in-situ* conservation.
- ⇒ Establishment of Orchidaria in 8 different zones for *ex situ* conservation.
- ⇒ Cultivation and propagation of over 2 lakh orchids.
- ⇒ Establishment of two Tissue culture labs at Tipi & Itanagar
- ⇒ Breeding & development of 15 hybrids; Five new hybrids registered viz 1. Renades 'Arunoday', 2. Archnocentron 'Tipi jubilee star', 3. Esmeranda 'Millenium Dawn', 4. Ascocenda 'Tipi Blue boy', 5. Cymbidium Sessa 'Green Beauty'.
- ⇒ Development of six Cymbidium farms involving local people.
- ⇒ Publication of two books, two booklets, 140 research papers, several folders, Stickers and publicity materials.

Over the years from establishment the orchid station has grown into a premiere institution in Orchid Research and Development. Now days this Centre has also become a popular tourists spot.

Sessa Orchid Sanctuary and Nursery, Sessa

Sessa Orchid Sanctuary is the area where the forest components that is flora and fauna are protected in their natural habitat. North East India, being house of large number of orchids, an Orchid Sanctuary cum nursery was established at Sessa, about 24 kilometers away from Tipi on way to Bomdila. It shares boundary with Eaglenest Wildlife Sanctuary to the southwest. It is a part of the Kameng



Protected Area Complex (KPAC), which is an Elephant Reserve. Birdlife International has designated Sessa and Eaglenest Sanctuaries as an Important Bird Area.

The department of Environment & Forests has developed trekking routes for visitors to enjoy the natural habitats of orchids. The sanctuary covers an area of 100 square kilometer at an altitude ranging from 1100 – 1800 meter MSL. The sanctuary harbours about 200 species of orchids comprising the genera like *Dendrobium*, *Bulbophyllum*, *Coelogyne*, *Eria*, *Liparis* etc. The sanctuary is unique in the country in having six new species of orchids and seven species of saprophytic orchids. The nursery at Sessa has developed many new hybrids of orchid species. Various wild as well as hybrid orchid species are displayed in the Nursery. There is also a demonstration farm of *Cymbidium* hybrids.

Van Vigyan Kendra, Chessa

Van vigyan Kendra, Chessa was established in the year 1981. It is situated about 55 Km from Itanagar. The location is characterized by the semi evergreen type of vegetation which supports the growth of shade loving herbs and shrubs, climbers and mainly the orchids. Thus this is the ideal site for research activities related to flora. The main objective of VVK is to fulfill the needs of field research of Silviculture, tree improvement, quality seed production, germplasm collection, introduction and evaluation of both timber and non timber species etc. An area of 100 ha was developed with systematic layout of various experimental plots, residential and non residential buildings, training facility, green houses, grafting houses, nurseries, guest house etc.

Dirang Orchid Centre

About 50 km from Bomdila on way to Towang, Orchid Center Dirang has been established in 1985. It caters to the needs of conservation of high altitude cool-loving orchids of the state in addition to carrying out breeding and improvement of native species. Besides these activities, efforts were made for the cultivation and farming of commercial orchids like *Cymbidium*, *Paphiopedilum* and shade-loving *Dendrobium* species.

You try to visit any of this Orchid research centres. Here you can enjoy the beauty of orchids and you will get lot of information not only about Orchids but also about other plants in your region.

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Pythagoras' Theorem: Proof by visualization

Haven't we all felt, at some time or the other, that mathematics is utterly boring? Invariably the boredom arises out of having to memorize long proofs with a bunch of greek and latin symbols.

According to the psychologist Jean Piaget's theory about cognitive development, a person needs to achieve a certain level to be able to reason formally and understand and construct proofs. This makes it very hard for a high school student to understand the geometry lessons, and renders it boring and detached from normal life.

Could there be an alternative approach to this math which could make proof writing more understandable and enjoyable? One answer to this question is Proof by Visualization.

Proofs by visualization are generally pictures or diagrams that help us see why a particular mathematical statement may be true, and how one could begin to go about proving it. While in some proofs by visualization, an equation or two may appear to help guide that process, the emphasis is clearly on providing visual clues to stimulate mathematical thought.

Let us try and prove the Pythagoras' theorem by visualization.

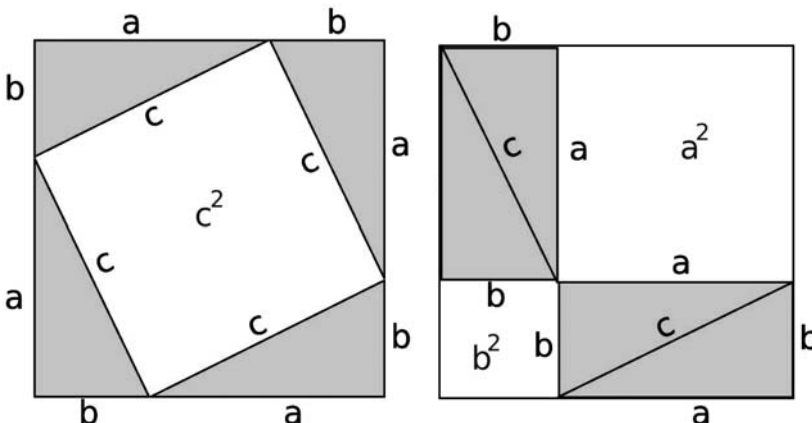
In mathematics, the Pythagoras' theorem is a relation among the three sides of a right-angled triangle. In terms of areas, it states:

In any right triangle, the area of the square whose side is the hypotenuse (the side opposite the right angle) is equal to the sum of the areas of the squares whose sides are the two legs (the two sides that meet at a right angle).

The theorem can be written as an equation relating the lengths of the sides a , b and c , as: $a^2 + b^2 = c^2$

Proof 1:

Look at the two figures carefully. Each of them has four triangles of sides a and b , placed inside a square of side $(a+b)$. In the first figure, the white area, which represents the area inside the square not containing the triangles is a square of side c . Thus the area of the white part is c^2 .



In the second figure, the triangles are re-arranged, such that the white area is made up of two squares, one of side a and the other of side b . Thus the area of the white part is $(a^2 + b^2)$.

As the two figures are formed by mere rearrangement of triangles, the white regions in both figures have the same areas and hence

$$a^2 + b^2 = c^2$$

Let us see another similar one:

Proof 2:

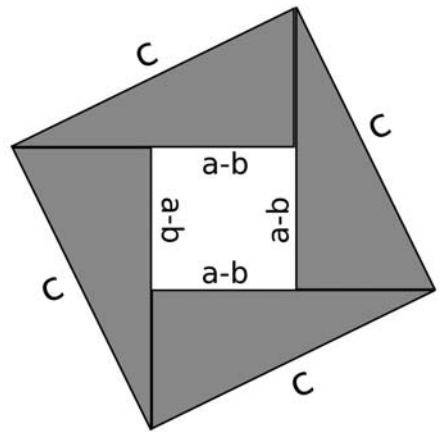
In this figure, the four triangles of sides a and b , are placed inside a square of side c . The white region, which represents the area inside the square not containing the triangles, is a square of side $(a-b)$. Thus the area of the white part is $(a-b)^2$.

From preliminary mathematics, we know that

1) Area of a right angled triangle of perpendicular sides a and b is $(\frac{1}{2}ab)$

2) $(a-b)^2 = a^2 + b^2 - 2ab$

$$\begin{aligned} \text{Thus we have } c^2 &= 4 \times (\frac{1}{2}ab) + (a-b)^2 \\ &= 2ab + a^2 + b^2 - 2ab \\ &= a^2 + b^2. \end{aligned}$$



And thus,

$$a^2 + b^2 = c^2$$

Proof 3:

The adjoining figure consists of a trapezium KLMN.

From preliminary mathematics, we know that

the area of a trapezium is the product mean of parallel sides and the perpendicular height between them. Thus

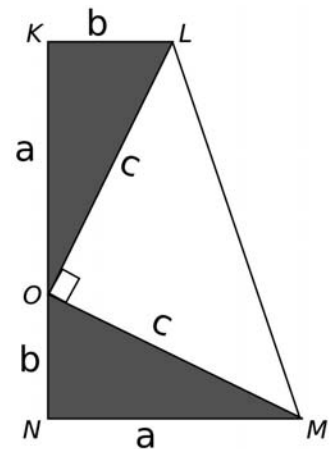
$$\begin{aligned} \text{Area(KLMN)} &= [\frac{1}{2}(a+b) \times (a+b)] \\ &= \frac{1}{2} [2(a+b)^2] \\ &= \frac{1}{2}(a^2 + b^2 + 2ab) \end{aligned}$$

This area KLMN is made up of 3 triangles, 2 in gray and one in white. Using formulae for area of triangles,

$$\begin{aligned} \text{Area(KLMN)} &= \frac{1}{2}ab + \frac{1}{2}ab + \frac{1}{2}(2c) \\ &= \frac{1}{2}(2ab + 2c^2) \end{aligned}$$

Inspecting the two representations of area of the trapezium, we can say that

$$a^2 + b^2 = c^2$$



There are around at least 365 different proofs of Pythagoras theorem out of which around at least 50% are given using visualization method. Can you try to visualize another proof for the Pythagoras theorem?.....Enjoy the trying!!

Energy Resources



Do you know, where does the energy, that we use, come from? Well, we will let you know about all the sources of energy being tapped today. Till now we have discussed about fossil fuels, nuclear energy, solar energy, wind energy, tidal energy, hydroelectric energy and Wave Energy. This time let us know about the promising energy generation options for future – ‘Biomass based energy’.

Energy from Biomass - organic materials

Introduction

Wood was once our main fuel. We burnt it to heat our homes and cook food.

Wood still provides a small percentage of the energy we use, but its importance as an energy source is dwindling. Today other solids like bagasse, animal wastes, rubbish, woodchips, seaweed, corn stalks along with wood can be burned, to make steam to drive turbines.

How it works

For biomass power station making electricity is pretty much like a fossil fuel power station:



Advantages

- ⇒ It makes sense to use waste materials where we can.
- ⇒ The fuel tends to be cheap.
- ⇒ Less demand on the fossil fuels.

Disadvantages

- ⇒ Collecting or growing the fuel in sufficient quantities can be difficult.
- ⇒ We burn the biofuel, so it makes greenhouse gases just like fossil fuels do.
- ⇒ Some waste materials are not available all year round.

Is it renewable?

Biomass is renewable, as we're going to carry on making waste products anyway. We can always plant & grow more sugarcane and more trees, so those are renewable too.

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Marie Curie

First Woman to get 'Nobel' and First person to get Two...!



Marie Curie (Maria Skłodowska-Curie) was the first ever women to get a Nobel Prize and also first person in history to obtain two Nobel Prizes in different areas of science (physics and chemistry). Marie Curie is known for her work with radioactivity and her discovery of radium.

Born in Poland and got naturalized citizen for France:

Born in Warsaw, Poland, Marie Curie was the first woman appointed to teach at La Sorbonne (University of Paris) and the first woman in France to achieve her doctoral degree. Curie was born on November 7, 1867 and moved to Paris when she was 24 to study science and become a naturalized French citizen. At the university, she met another instructor to whom she would eventually marry named Pierre Curie. The two worked together studying radioactive compounds and refining uranium pitchblende ore. Besides radium, Marie

M. Skłodowska Curie

Curie also discovered a new substance polonium, which she named after her native homeland of Poland.

Nobel Discoveries:

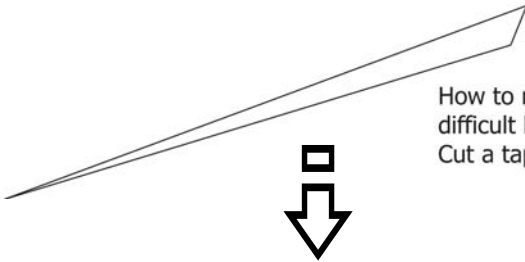
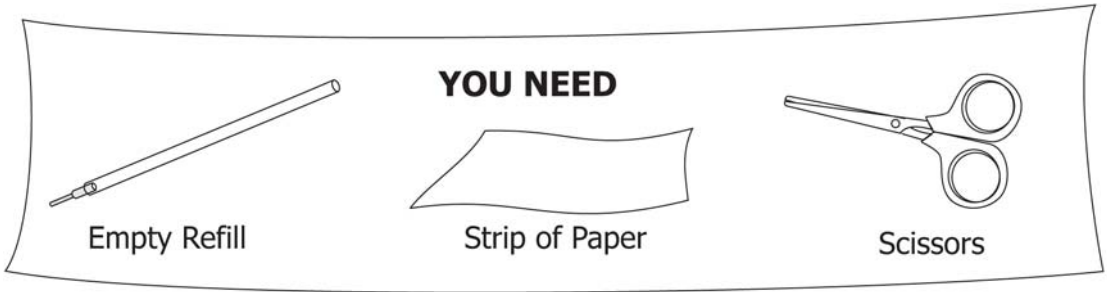
In 1903, Marie and Pierre Curie and Henri Becquerel all received the Nobel Prize in physics for their research on radiation. Marie Curie was the first woman to ever receive the Nobel Prize. In 1911, Marie Curie received her second Nobel Prize, this time in chemistry for the discovery of radium and polonium. Other than Marie Curie, Linus Pauling is the only other person to ever received two Nobel Prizes.

No 'Patents'...

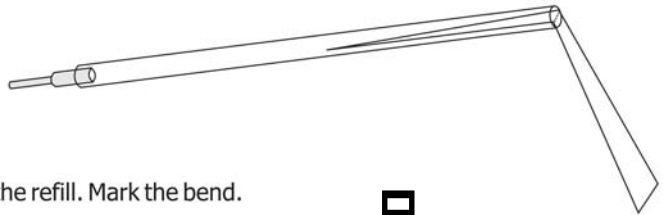
Curie intentionally decided not to patent the process to extract and purify radium, leaving the doors open to the scientific community to study the process unhindered. While being a brilliant scientist, Marie Curie also suffered from depression and kidney problems.

On July 4, 1934, Marie Curie died of leukemia, which may have been caused by her exposure to radiation.

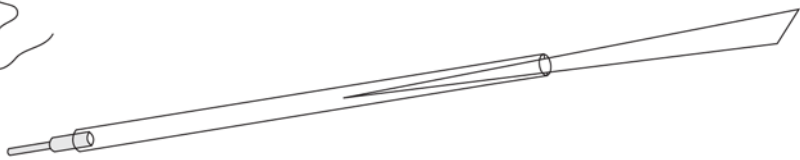
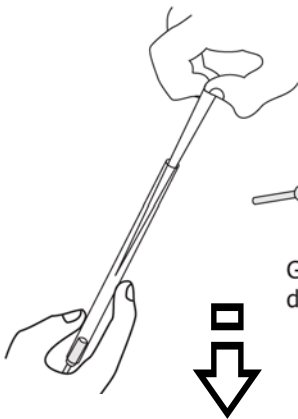
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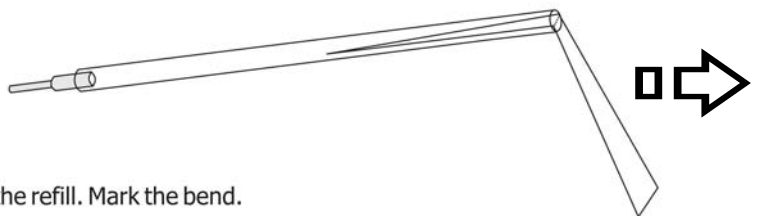
How to measure the internal diameter of a refill? It looks difficult but it's easy. Cut a taper strip from a piece of paper.



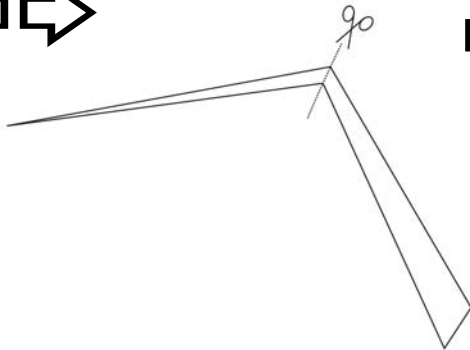
Bend the paper strip at the end of the refill. Mark the bend.



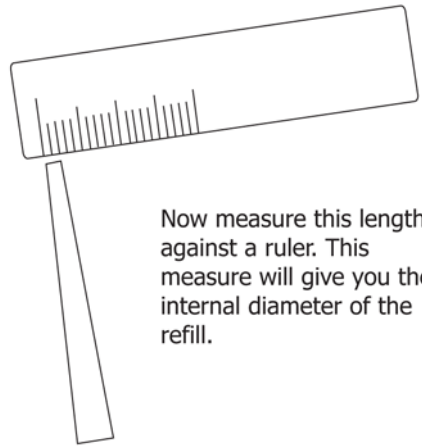
Gently put the thin end of the strip into the plastic refill. It will only go a certain distance and no more. Don't push the strip.



Bend the paper strip at the end of the refill. Mark the bend.



Remove the strip, straighten and cut it at the bend.



Now measure this length against a ruler. This measure will give you the internal diameter of the refill.

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World Environment Day

World Environment Day (WED) is a day that stimulates awareness of the environment and enhances political attention and public action. It is on 5 June. It was the day that United Nations Conference on the Human Environment began. The United Nations Conference on the Human Environment was from 5–16 June 1972. It was established by the United Nations General Assembly in 1972. The first World Environment Day was on 1973. World Environment Day is hosted every year by a different city with a different theme and is commemorated with an international exposition in the week of 5 June. World Environment Day is in summer in the Northern Hemisphere and winter in the Southern Hemisphere.

Stockholm was without doubt the landmark event in the growth of international environmentalism. It was the first occasion on which the political, social and economic problems of the global environment were discussed at an intergovernmental forum with a view to actually taking corrective action.

Theme For the Year 2011:

Forests-Nature At Your Service- Forests cover one third of the earth's land mass, performing vital functions and services around the world which make our planet alive with possibilities. In fact, 1.6 billion people depend on forests for their livelihoods. They play a key role in our battle against climate change, releasing oxygen into the atmosphere while storing carbon dioxide. Thousands of activities were organized worldwide, with beach clean-ups, concerts, exhibits, film festivals, community events and much more.

Hosting City for this year is our capital - Delhi.

Studying Household Waste

Introduction:

If you peep into your daily lifestyle, you will realize how much of material which is no longer useful to us is thrown directly into the dustbin as 'waste'. Today one of the biggest crises that the world is facing is recycling and reducing waste. Now, our question to the reader is- Is this really 'waste'? In Nature nothing is wasted. The leaves that fall on soil are decomposed and converted into rich humus which is again used by plants. Can we do the same for our 'waste'? Can waste support life? Our households have two types of waste- organic (which is biodegradable such as vegetable and fruits peels, leaves) and inorganic (non-biodegradable such as plastic). Organic waste is 'food' for many organisms such as earthworms, fungus, bacteria, rodents, flies. We can recycle our waste with the help of this 'animal and microorganisms police force' that lives in the soil that will patrol the waste flooded areas and take the right action against it. A small activity will help you understand the role played by these soil organisms in **'converting waste to resources'**.

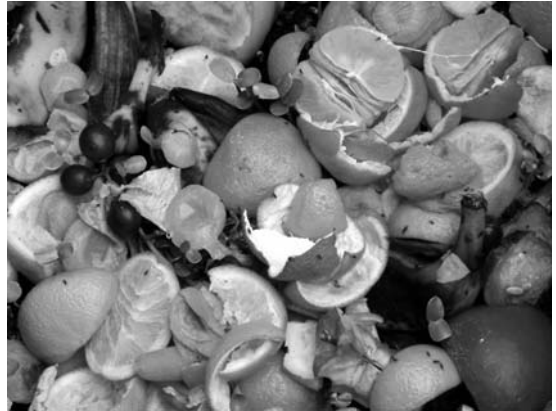
Activity:

To understand the role of soil organisms to recycle organic material

You will need: 3 transparent plastic bags (labeled as Set 1, Set 2 and Set 3), kitchen waste, soil.

First, you need to collect wet garbage (also known as organic waste) from your kitchen. This can include any green waste from your kitchen. Mix the garbage nicely with your hands. Now divide it into 3 sets such that garbage composition and weight of each set is similar with the other sets.

Place equal amounts of kitchen waste in each of the 3 plastic bags and label them as Set1, Set 2 and Set 3.



Set 1	Set 2	Set 3
(open to air i.e aerobic treatment)	(not allowing air to pass in i.e anaerobic treatment)	(soil treatment)
↓	↓	↓
Take plastic bag. Add kitchen waste to it.	Take plastic bag Add kitchen waste to it.	Take plastic bag Add kitchen waste to it.
↓	↓	↓
Sprinkle water on the kitchen waste.	Sprinkle water on the kitchen waste.	Mix kitchen waste with soil. Add a layer of soil on the garbage-soil mixture and then leave the bag open.
↓	↓	↓
Leave the plastic bag open	Closely tie the mouth of the plastic bag such that air cannot enter the bag.	Sprinkle some water on the soil

Observations: Every day check all the sets and notice the changes that are taking place such as 1. Colour change of waste 2. Smell 3. Any insects you notice (eg. Flies, earthworms) or fungus. Note down your observations. A completely decomposed organic waste looks like soil. So all you have to do is observe which of the 3 sets turns into soil-like form first and tell us! The treatment which converts waste faster is a better method to recycle our daily waste!

Air has bacteria and fungus spores which feed on our kitchen waste. So does soil! But soil has many other worms and insect which come to 'life' when they find their food. These organisms play a very important role in transferring most of the nutrients back to the soil so that plants can take them up and the nutrients again enter the food chain.

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May 18 - Bertrand Russell was a Welsh mathematical logician, analytical philosopher and writer. He worked to establish foundations of mathematics and developed contemporary formal logic. He is known for Russell's paradox (concerning the set of all sets that are not members of themselves), his theory of types, and his contributions to the first-order predicate calculus. He believed in logicism, the theory that mathematics was in some important sense reducible to formal logic. With Alfred Whitehead, he co-authored *Principia Mathematica* (1910). He was active in social and political campaigns, and advocated pacifism and nuclear disarmament. The Nobel Prize for Literature was awarded to Russell in 1950.

Invention

In modern period human lives become more comfortable & faster due to various inventions. Let's understand origin of some of them.

Bicycle



Multiple innovators contributed to the history of the bicycle by developing precursor human-powered vehicles. Being the first human means of transport to make use of the two-wheeler principle is invented by the German Baron Karl von Drais, is regarded as the forerunner of the modern bicycle. It was introduced by Drais to the public in Mannheim in summer 1817 and in Paris in 1818.

Its rider sat astride a wooden frame supported by two in-line wheels and pushed the vehicle along with his/her feet while steering the front wheel.

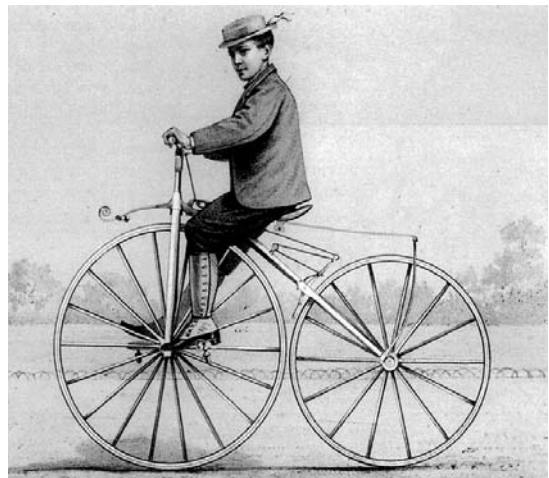
In the early 1860s, Frenchmen Pierre Michaux and Pierre Lallement took bicycle design in a new direction by adding a mechanical crank drive with pedals on an enlarged front wheel. Several inventions followed using rear wheel drive, the best known being the rod-driven velocipede by Scotsman Thomas McCall in 1869. It featured a tubular steel frame on which were mounted wire-spoked wheels with solid rubber tires. These bicycles were difficult to ride due to their very high seat and poor weight distribution.

The *dwarf ordinary* addressed some of these faults by reducing the front wheel diameter and setting the seat further back. J. K. Starley, J. H. Lawson, and Shergold solved this problem by introducing the chain drive connecting the frame-mounted cranks to the rear wheel.

These models were known as *safety bicycles*, for their lower seat height and better weight distribution. (Although without pneumatic tires the ride of the smaller wheeled bicycle would be much rougher than that of the larger wheeled variety.) Soon, the *seat tube* was added, creating the double-triangle *diamond frame* of the modern bike.

Further innovations increased comfort and ushered in a second bicycle craze. In 1888, Scotsman John Boyd Dunlop introduced the first practical pneumatic tire, which soon became universal. Derailleur gears and hand-operated cable-pull brakes were also developed during these years, but were only slowly adopted by casual riders.

Bicycles and horse buggies were the two mainstays of private transportation just prior to the automobile.



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Friends, Astronomy is a natural science that deals with the study of objects such as stars, planets, comets, nebulae, star clusters and galaxies. In this article we will be having glimpse of , how our zodiac signs are placed in the sky. In astronomical terminology we call them constellations. A constellation can be described as a specific configuration of stars seen in the sky. Until today, 88 constellations have been discovered and observed from the Earth.

Sagittarius: The Archer

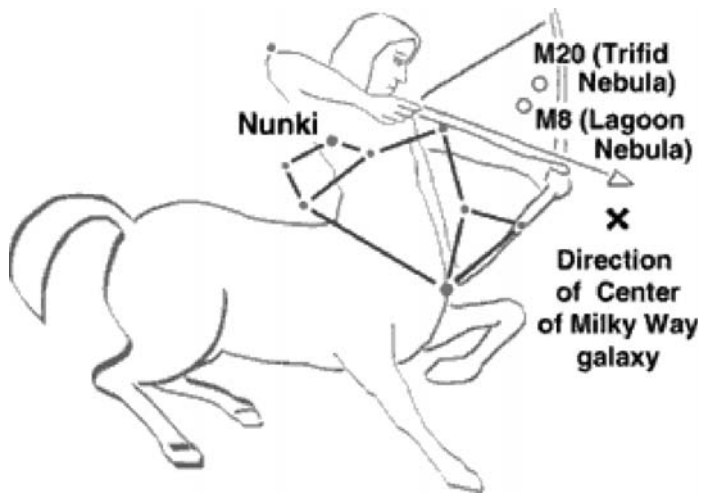
Sagittarius is a summer constellation. For Northern Hemisphere observers, it can be seen floating above the southern horizon during the summer months from June through August and into early September.

Easy way to find Sagittarius would be to find the Milky Way overhead in summer. Follow it to the southern horizon, and you should find Sagittarius. Sagittarius is commonly represented as a centaur drawing a bow. It lies between Ophiuchus to the west and Capricornus to the east.

Stars:-From Earth we can see densest Milky Way as it passes through Sagittarius. This is where the galactic center lies. Consequently, Sagittarius contains nebulae such as the Lagoon Nebula the Omega Nebula, (Swan or Horseshoe), and the Trifid Nebula a (contains some very young, hot stars *). This grouping is often called as the *Sagittarius triplet*.

Mythological history: According to the Greeks, this sign has a history dating back from the time of Hercules. Hercules and Chiron (who was a noble centaur) were friends, but Hercules killed Chiron by

mistake with an arrow. Hearing the grief of Hercules, Zeus blessed Chiron with a peaceful position among the stars as constellation Sagittarius.



Hot stars:-Stars are classified by their spectra (the elements that they absorb) and their temperature. There are seven main types of stars. Most stars, including the sun, are fueled by nuclear fusion, converting hydrogen into helium. For these stars, the hotter they are, the brighter they look. These stars are in the most stable part of their existence; this stage generally lasts for about 5 billion years.

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Internet: The Virtual world

If you feel as if everybody around you is shopping on the Internet and you would like to know how to join them, or perhaps you just want to find out what all this is about, why not have a look at our section on online shopping.

Online Shopping

Online shopping is the process whereby consumers directly buy goods, services etc. from a seller without an intermediary

delivery information is collected, if necessary. The consumer often receives an e-mail confirmation once the transaction is complete.

Most online shops want you to pay for your goods with either a credit or debit card, which makes things tricky for people without bank accounts. If you don't have either of the two, you may be able to use a prepaid card.



service over the Internet. If an intermediary service is present the process is called electronic commerce. Books are one of the things which are often bought online. However, clothes, shoes, and accessories are very popular too.. Additionally, Cosmetics, nutrition products, and groceries are increasingly being purchased online. About one fourth of travelers buy their plane tickets online because it is a quick and easy way to compare ticket prices and make a purchase. Online shopping provides more freedom and control than shopping in a store.

Once a particular product has been found on the web site of the seller, most online retailers use shopping cart software to allow the consumer to accumulate multiple items and to adjust quantities, analogous to filling a physical shopping cart or basket in a conventional store. A "checkout" process follows in which payment and



The Business of eBay:

eBay.com is an example of online marketplace; a place for buyers and sellers to come together and trade almost anything.

You can browse through categories like Antiques, Boats, Clothing & Accessories, Computers & Networking, Jewelry & Watches and Video Games. IF you find something interesting, you click on the product title and view the details, including pictures, descriptions, payment options and shipping information.

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Slow Loris



Friends, in this article we will be going through various species which are facing threats to their very existence.

Slow Loris are known to have a toxic bite—a rare trait among mammals. They are nocturnal primates living in the rainforests of South and Southeast Asia. They are threatened by deforestation and the wildlife trade, including the exotic pet trade, traditional medicine, and use as bush meat.

Scientific Name :

Nycticebus bengalensis

Type: Mammal **Diet:** Omnivores

Size: 27 to 38 cm

Weight: 1100-1605 g

IUCN status: Endangered / Vulnerable

Total population : Unknown

Diet : They are omnivorous. They eat insects, arthropods, small birds and reptiles, eggs, fruits, gums, nectar and other vegetation. The study showed a diet consisting of 43.3% gum, 31.7% nectar, 22.5% fruit and just 2.5% arthropods and other animal prey.

Distribution: Distributed in South and Southeast Asia (east of the Brahmaputra River), ranging from Northeast India through Indochina, Philippines, Java, Borneo, Sumatra, China (Yunnan), Laos, Vietnam, Cambodia, Bangladesh, Burma, Thailand, Malaysia, Indonesia.

Habitat : Slow Loris range across tropical and subtropical regions and are found in primary and secondary rainforests, semi-evergreen, wet evergreen, dry evergreen, mixed deciduous tropical forest, swamp forests as well as bamboo groves mixed with hardwood trees, farm bush and mangrove swamps and mangrove forests.

Threats & Conservation: The two greatest threats to slow Loris are deforestation and the wildlife trade. Slow Loris have lost a significant amount of habitat, with habitat fragmentation isolating small populations and obstructing biological dispersal. However, despite the lost habitat, their decline is most closely associated with unsustainable trade, either as exotic pets or for traditional medicine. Slow Loris are also very stress-sensitive and do not do well in captivity. The trade in slow lorises, whether as pets or for medicine, is illegal and prohibited.

It is evaluated as **Endangered/ Vulnerable** species on the IUCN Red List.

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S(c)quiz Your Brains....!!!

Solve this science quiz. Send your answers to Janana Prabodhini's address.
.....The interesting prize is awaiting you.....!!

Oceanic Science

1. What is the biggest planet in our solar system?
a. Jupiter b. Mars c. Venus
2. True or false? DNA is the shortened form of the term 'Deoxyribonucleic acid'?
a. False b. True
3. What is the name of the closest star to the earth?
a. The sun b. Venus c. None
4. True or false? Frogs are cold blooded animals.
a. True b. False
5. What is the name of the element with the chemical symbol 'Ag'?
a. Gold b. Argon c. Silver
6. 'Arachnophobia' is fear of which of the following animal?
a. Crab b. Spider c. Lizard
7. Pure water has a pH level of around?
a. 8 b. 5 c. 7
8. What is the name of the hard part of the human skeleton which protects the brain?
a. Skin b. Skull c. Both a & b
9. How many bones do sharks have in their body?
a. 0 b. 120 c. 11
10. Which famous scientist was awarded the 1921 Nobel Prize in Physics for his work on theoretical physics?
a. Isaac Newton b. Albert Einstein c. Edison

Nivedita Gadikar

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Answers to the quiz held in March 2011

- 1) a. True 2) c. None
- 3) b. False 4) b. Few days
- 5) a. True 6) c. More than 70 %
- 7) b. Mariana trench
- 8) c. Nile 9) a. False
- 10) b. Clouds



Science History

May 10 : In 1949, the first planetarium in the U.S. owned by a university opened at the University of Chapel Hill, North Carolina. The Morehead Planetarium, one of the largest in the U.S., was the gift of John Motley Morehead III (1870-1965). The Morehead Building included the 68-ft dome, 300-seat Star Theater. As the U.S. space program began, the planetarium provided important celestial navigation training for U.S. astronauts in the Mercury program.



23 May 1707 : Carolus Linnaeus - Swedish botanist and explorer who was the first to frame principles for defining genera and species of organisms and to create a uniform system for naming them. He created the 'Five Kingdom Classification System' for the classification of all the living organisms.

In Scotland, Joseph Black (1728 - 1799) conducted studies on gases which were part of his thesis for the Doctor of Medicine at the University of Edinburgh. He discovered the carbon dioxide. Let's see what he says about it!

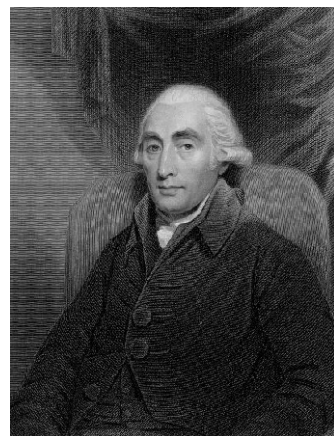
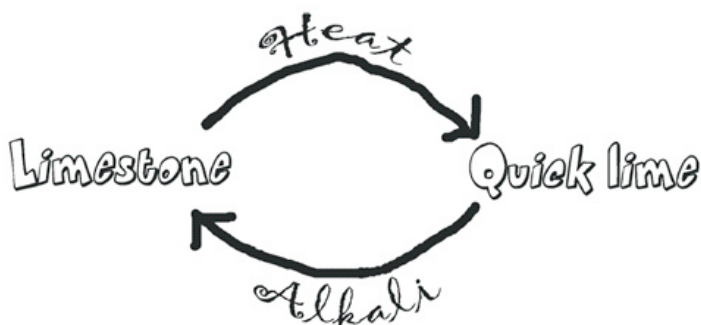
Story of Chemistry

Science of Matter...



A gas is lost on heating limestone (CaCO_3) and it is converted to quicklime (CaO). Treatment of the quicklime with 'alkali' (sodium carbonate) gives the original limestone."

"We have seen that a gas can react chemically. The gas (CO_2) can be fixed in solid form so let's call it 'fixed air'".



This work completely altered the thought of chemists. For the first time it was shown that a gas could combine chemically with a solid (be "fixed" by it) to produce a new compound with different properties, instead of being held by some indefinite physical force.

Olympiad



Homi Bhabha Centre for Science Education is the nodal centre of the country for Olympiad programs in mathematics and sciences. The program aims at promoting excellence in science and mathematics among pre-university students.

The Mathematics Olympiad is conducted under the aegis of the National Board of Higher Mathematics (NBHM). The subjects includes physics, chemistry, biology, astronomy, and junior science. The first stage for each subject is organized by the Indian

Association of Physics Teachers. All the remaining stages are organized by Homi Bhabha Centre for Science Education.

For enrollment below are contact details

Mathematics Olympiad: - Prof. N. R. Das , Department of Mathematics , Gauhati University , Gopinath Bordoloi Nagar, Guwahati -781 014 , Assam. Mob: 9864091907
E-mail: nrd47@yahoo.co.in.

Science and Astronomy Olympiads: - Prof. M. L. Oglapurkar Co-coordinator (NSEP) IAPT Office, I.I.E. Campus, 128/2, J. P. Naik Marg, Kothrud, Pune - 411 038.
Tel: 020-25420163. Email: iapt@vsnl.net

Students should give the following details in their letter or email: Name, age, sex, Address with pin code, Telephone, Name of the school/college, Class in which studying.

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