

ECO CLUB MAGAZINE

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[FOR PRIVATE CIRCULATION AMONG STUDENTS]

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ECO CLUB
POORNAPRAJNA P.U.COLLEGE
UDUPI- 576101

Dear Students,

It gives me immense pleasure in informing you that ours is one of the few select P. U. Colleges of the state to receive a one - time grant from the Govt. of Karnataka under the aegis of Environmental Management and Policy Research Institute (EMPRI). I call upon you to participate wholeheartedly in the programmes already chalked out.

Environment protection is the issue of utmost importance. We are, if we have our environment, if not, destruction of mankind is a certainty. Excessive industrialisation, Globalisation, an unnecessary luxurious life is taking the ecology to the brink of destruction. Ignorance and carelessness towards environment should be overcome by educating the society and the efforts should begin with you, students, who are a part of the present society and are the future of the world.

Each one of us knows about the abundance of wealth found at Sri Ananthapadmanabha Temple, Trivandrum. The Royal family of Trivandrum is notable for being the guardian of this wealth without using it for themselves. It is said that the members of the royal family would wipe their feet even when leaving the temple as they felt even a dust particle from the temple was property of the temple and it wasn't to be found elsewhere. This should be our guide. The abundance of wealth provided to us by the nature should be protected; it should flourish for the future generations.

The Eco club has a very important role to play in this direction. The publishing of the monthly magazine is one of the activities of the Eco club, which is a step in the right direction. A revolution for the ecology may not be possible but repeating the ideas and thoughts would definitely bring about awareness in the minds of the students and lead to evolution of protectionism. Various programmes organised by the Eco club would light the way towards real progress. The Earth, its forests, water resources, the air, etc. are ours to use but not to abuse. Let us use our independence and freedom in understanding our responsibilities towards future generations. A good deed done is a reward in itself. Let us not waste the opportunities.

Happy Independence Day to one and all. JAI HIND.

PROF. VENUGOPAL MULLERIA
PRINCIPAL
EDITOR IN CHIEF

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ನಿಜಸುಖದ ಹೊನಲು ಹರಿದಿರಲಿ

ನೆಲಜಲದ ಆಧಾರ ಗಿರಿವನದ ಈ ಭೂಮಿ

ಎಂದೆಂದೂ ಋಷಿಯಿಂದ ನಗುತಿರಲಿ

ಸಾವಿರದ ವರ್ಷದ ಸೆಲೆಯು ಸಂದರ್ಭಿಸಿ

ಮುಂದೆ ತಲೆಮಾರಿನ ನಿಧಿಯಾಗಲಿ

RULES OF ECOISM

[Thoughts and practices to be inculcated by members of ECO CLUB]

- 1 Take pride in being a member of the Eco-Club. Your work attitude and lifestyle should be admirable. Participate in all the meetings and activities of the Eco-Club with enthusiasm and diligence without any inferiority complex. Do not concern yourself that others will think less about you when you participate in the activities.
- 2 Keep an open mind to environment related facts and issues. Understand and implement the knowledge imparted by the seminars, lectures, etc organized by the Eco-Club. Self study on related issues by using the library or the internet and practicing on the same fulfills our motto.

- 3 Keep yourself ready with knowledge of nature related issues and be ready to share the same with your friends in any of the meetings held. Also practice writing articles which can be published in suitable media.
- 4 'Live and let live'. Be aware of the fact that birds and animals, trees and plants have as much if not more right to live on earth as humans do. Learn the lessons taught by nature. Take your knowledge from whichever source you find. Your teachers literate or illiterate - professionally qualified or not, always command your respect and attention.
- 5 'Cleanliness is Godliness'-remember this always. Educate the people around you on matters of environment, ecology and cleanliness. Do not force them to learn. Creating awareness by practicing what you say is important.
- 6 Understand and implement the energy saving tips. Create awareness among the people around you to stop wastage of energy resources.
- 7 Avoid or reduce the use of plastic or such other items that harm the environment. Waste disposal should be given importance. Littering around should be stopped. Levels of environment pollution should be studied and awareness created among people to stop the same.
- 8 Team work is the key to success. Work together as a family. Making fun of your team mates, having fun at the cost of your dignity should be avoided completely. Members of the Eco-Club need to have a dignified behavior in all walks of life.
- 9 Being aware of the ecological issues does not mean you can take law into your hands when dealing with offenders. Peaceful dealings, lawful approaches are essential to reach the necessary solution.
- 10 The nature has given us so many things— Land, air, the sky, the water resources— conservation of the same for future generations is our responsibility. Any sacrifice needed to achieve this is too less when compared to what we have received from nature. Understand this and accept it as a very important part of your lifestyle.

Ecoism—guiding light to our lives

LED (Light Emitting Diode)

USHA H. II Sci. 'C'

A light emitting diode is a semi conductor chip that emits light when conducting current. LED's are versatile due to their ability to emit nearly all the spectrums of light. Modern LED's are versatile also due to their different forms.

Although LED's are developed since 1960's , only recent Led's have acceptable level of illumination. All LED's are rated to have 50,000+ hour life span, in this same amount we can buy over 50 incandescent light bulbs or 5 CFLs!

Even our most powerful replacement bulb (XR-10) uses only 10 watts of electricity, yet it performs on par with a 100 watt incandescent bulb and is due to the extremely efficient nature of LED's. The Incandescent bulb waste 98% of their energy producing wasted heat. LED's on the other hand produce very little heat in order to maintain brilliant light saving and even assist in cooling costs.

According to a research one -100 watt bulb costs approximately 43 dollars to run per year at 12 hours per day. Also this lasts only for 1000 hours. Compare this to an LED. One- 10 watt LED costs approximately 4.30 dollars to run per year at 12 hours per day with the same illumination. Well, you can't imagine, this small diode lasts for about 4000 hours!!! Since LEDs have no filament or tube to break thus they are very durable. Even if dropped, you will not be left a mess of broken or shattered glass.

LEDs are the most environmentally friendly light sources other than pure sun light. First, there are no hazardous substances used inside LEDs. CFLs are recommended as a solution for incandescent bulbs. But in the preparation of these CFLs mercury is used. This is the most hazardous chemical for our environment. Second, LEDs are part of the solution to energy crisis we are facing. These LEDs use less power up and generate more light and liberate less heat. Finally, LEDs can make up your lighting system at home. With the long life of LED, we can save on the disposal of 50 incandescent bulbs and 5 mercury tainted CFLs thus cleaning up landfills and ultimately saving our environment from waste. Well, tired of annoying flickering and headaches caused by compact Fluorescent bulbs? Say hello to LEDs and their consistent visibility!!!!!!



Role Of Plants To The Human Societies

- SAMRUDDH II BSB

All human societies are dependent on plants and the products made from them . The use of vegetables and fruits are common to all cultures ,but plants has wide variety of other uses too. Starchy and spicy roots are used for food and flavorings , plant fibers are woven into textiles and ropes ,and trees not only give us timber, but also rubbery latexes ,cork, and pulp of paper . Perfume ,tea, cooking oils , medical drugs ,cosmetic ,chocolate ,and even chewing gums are all everyday items that obtain from plants.

Plants play an important role in providing some of the basic human needs such as:

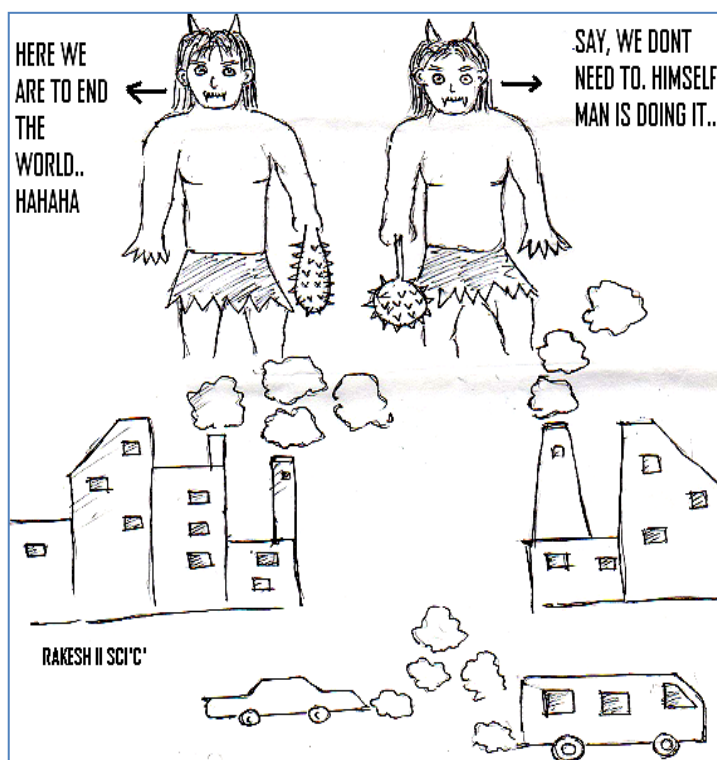
Food and drink : starchy plants, such as grains potatoes, yams and some grasses ,form the basis of most diets. Plants provide tea, coffee and cocoa, and refreshing, vitamin rich juices can be squeezed from fruits. Food and juices are often sweetened with sugar prepared from sugarcane.

Medicine : Some plants produce chemicals ,that if eaten or touched, can have dramatic effects. These plants may be if take in large doses, but in small amount they often have valuable medicinal properties .Cinchona tree bark is used to make quinine to treat malaria.

Fuel: coal , oil and natural gas are all derived from plants that lived long ago. Half the wood felled each year is also burnt for fuel. In some countries the compressed remains of mosses and sedges is dug and used as fuel.

Paper: Books ,tissues ,and printed items such as newspapers are a few examples of the knds of paper that we use daily. Paper is made from wood pulp. Some natural forests are still being felled to provide pulp. But now they are done through plantations.

So its our duty to save plants so that some of the basic human needs are fulfilled.



IMPACT OF CHLOROFLUOROCARBONS ON OZONE

Nithish Nayak I BSB

Ozone, or trioxigen, is a triatomic molecule, consisting of three oxygen atoms. It is an allotrope of oxygen. Ozone in the lower atmosphere is an air pollutant with harmful effects on the respiratory systems of animals and will burn sensitive plants; however, the ozone layer in the upper atmosphere is beneficial, preventing potentially damaging electromagnetic radiation from reaching the Earth's surface. Ozone is present in low concentrations throughout the Earth's atmosphere.

Nowadays ozone is getting depleted due to various reasons and one among the reasons is CHLOROFLUORO CARBON. Only a few factors combine to create the problem of ozone layer depletion. The production and emission of CFCs, chlorofluorocarbons, is by far the leading cause.

Many countries have called for the end of CFC production because only a few produce the chemical. However, those industries that do use CFCs do not want to discontinue usage of this highly valuable industrial chemical.

CFCs are used in industry in a variety of ways and have been amazingly useful in many products. Discovered in the 1930s by American chemist Thomas Midgley, CFCs came to be used in refrigerators, home insulation, plastic foam, and throwaway food containers.

Only later did people realize the disaster CFCs caused in the stratosphere. There, the chlorine atom is removed from the CFC and attracts one of the three oxygen atoms in the ozone molecule. The process continues, and a single chlorine atom can destroy over 100,000 molecules of ozone.

In 1974, Sherwood Rowland and Mario Molina followed the path of CFCs. Their research proved that CFCs were entering the atmosphere, and they concluded that 99% of all CFC molecules would end up in the stratosphere.

Only in 1984, when the ozone layer hole was discovered over Antarctica, was the proof truly conclusive. At that point, it was hard to question the destructive capabilities of CFCs.

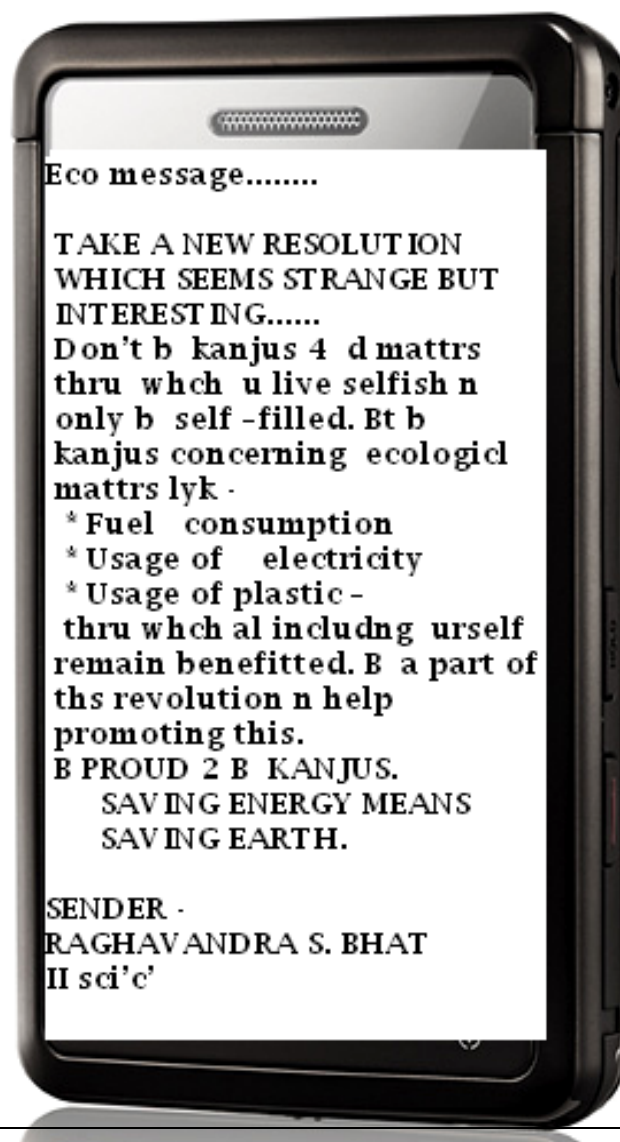
Even if CFCs were banned, problems would remain. There would still be no way to remove the CFCs that are now present in the environment. Clearly though, something must be done to limit this international problem in the future.

Today we have lot of people suffering from skin cancer and many other types of cancer the main reason which is the depletion of ozone. Depletion of 1% of ozone causes 2% of sun's UV-B rays enter earth.

The EPA estimates that 60 million Americans born by the year 2075 will get skin cancer because of ozone depletion. About one million of these people will die. Not only skin cancer but there will be a increase in infectious diseases like malaria etc. in addition to this there will be around 17million people found with cataract.

The environment will also be negatively affected by ozone depletion. The life cycles of plants will change, disrupting the food chain. Effects on animals will also be severe, and are very difficult to foresee. Oceans will be hit hard as well. The most basic microscopic organisms such as plankton may not be able to survive. If that happened, it would mean that all of the other animals that are above plankton in the food chain would also die out. Other ecosystems such as forests and deserts will also be harmed. The planet's climate could also be affected by depletion of the ozone layer. Wind patterns could change, resulting in climatic changes throughout the world.

HENCE WE SHOULD MAKE THE LEAST USE OF CHLORO FLUROCARBON AND SAVE THE OZONE LAYER INTURN SAVE THE LIFE...



Desi Game

LAGORI

Pooja D. Shetty, II Sci'C



Lagori or Lagoori is a game originally from Karnataka, played by two teams in an unlimited area. A member of one team (the *seekers*) throws a soft ball at a pile of stones to knock them over. Then the seekers try to restore the pile of stones while the opposing team (the *hitters*) throws the ball at them. If the ball touches a seeker, he is out and his team continues without him. But a team member can always safeguard himself by touching the opposite team member before the ball hits him.

This is quite an interesting pastime for teenage pals. This game involves two teams (seeker team and hitter team) with at least 3 players per team and a big ground/ empty street. The other requirements include a soft ball and 4 to 7 plates of stone (of size of a human palm) heaped on above the other (Note: These stones must be lighter enough to be unheaped when hit by the soft ball we have.)

Then we are ready for excitement, the heap of stones is placed in center of small circle and two teams stand on either side of any diagonal of circle about 8-10 foot away from the center. The seeker team has the ball with them and need to unheap the stones by aiming them with the ball. If the player is unable to unheap the ball then chance goes to the next player of the team. The hitter team has no work until any person in seeker team hits the stones with a ball from the place where they stand. Once the ball is hit the player of seeker team who has hit the ball will be the main target and others are sub targets. Now the actual goal of hitter team players is to hit one main target or two sub targets with ball before they reheap the stones in the center of circle. So the points are given to the seeker team if they reheap the stones without getting hits and shout "LAGORI" to signal the end of game, and to the hitter team if they hit the targets by the time they utter "LAGORI" These additional rules make the game even more interesting. Group of players can play this game. Big ground or garden or playing area is required for this game. This game is one of the most favorite game among the kids as well as youngsters

Below description is how to play **Lagori** step by step

- Divide all the players into two teams.
- Decide the limit of the ground.
- Make a pile of stones and the draw line at the distance of 8-10 foot from pile.
- One of the team will decide to break the pile of the stone with ball.
- One team member will throw ball to disassemble the pile of stone.
- Each team member has three chances to break the pile. In any of the three tries, if the thrower's ball does not knock down the pile and is caught by an

opponent after the first bounce then the thrower is out. If player is not able to break the pile then he is out and another team member comes to break.

- If any team member able to disassemble the pile then all team member of hitter team has to run and try to arrange the stone pile.
- When hitter team arranging stone pile at that time opponent team have to hit as many members as he can with ball. If the ball touches any member then he is out and team should continue game without that member.
- If any team member from hitter's team crosses the ground limit then that team member is out.
- If the hitter's ball bounces off the pile and opposite team catches it then his whole team is out.
- If hitter team is successfully able to arrange the pile then they will get one point. And they can use this point to get team member back who is out of team.
- If hitter team is not able to arrange the stone of pile and all the team members out then opponent team will become hitter team.
- If hitter team able to arrange the stone of pile continuously seven time than hitter team gets additional point.

In other parts of the country, the same game is known by the name of *Lingorchya* (Maharashtra), *Pitthu* (Haryan and northern Rajasthan), or *Sitoliya* (Rajasthan and Gujarat). In Andhra Pradesh, Logori is played with 7 stones and is called *Yedu Penkulata* or *Pittu*. On a positive note, desi games and outdoor games help us save electricity and build good relationship with the nature. In health related matters also, outdoor games have a good impact.



Eco club members enjoying communing with nature , playing Lagori.

ECO QUIZ

1. On this day in 1972, the Stockholm Conference on Human Environment was held in Sweden. Since then the World Environment Day is celebrated on this day. State the date

- a) March 8 b) June 5 c) May 22 d) October 8

2. The state's and citizens' responsibilities for environmental protection is enshrined in the Constitution of India in the following two articles:

- a) 38G and 58A b) 55B and 51D
c) 48A and 51G d) 59B and 12D

3. This species of bird native to North America was considered to have been one of the most numerous birds on earth. Intensive shooting and the destruction of the birds' natural breeding ground brought about a sudden fall in their numbers. The last of this species on earth died in a zoo in Circinnati in 1914. Name this bird.

- a) The passenger pigeon b) The Bald eagle
c) The Egret d) The Falcon

4. Which is the first state to implement the path-breaking proposal that environment should be included as a separate subject in schools?

- a) Karnatakab) Maharashtra
c) Kerala d) Tamil Nadu

5. Bhopal gas tragedy struck in the year 1984 due to the leakage of the following gas:

- a) methyl-iso-cyanate b) nitrous oxide
c) methane d) carbon monoxide

6. What is car-pooling?

- a) an interesting computer game b) intensive washing of your father's car
c) you and your friends sharing a ride to a movie d) none of the above

7. The GAP (Ganga Action Plan) – a project to clean up the polluted waters of the Ganga - plans to intercept and divert municipal sewage falling into the river from 25 large urban conglomerates in three states. Name them.

- a) UP, Haryana and Punjab
b) UP, Bihar and West Bengal
c) Himachal Pradesh, UP, and Haryana
d) Orissa, Bihar and West Bengal

8. Project Tiger, a programme to maintain a viable population of tigers in the country and to chalk out areas for their habitat, was launched in the year

- a) 1975 b) 1973 c) 1974 d) 1971

9. The Giant Panda is the official symbol of the WWF (World Wide Fund for Nature). In which country is this animal found?

- a) China b) India c) Myanmar d) New Zealand

10. The Gir forest was declared a protected area to ensure the safety of this animal and to protect its last habitat. This forest in Gujarat is famous for

- a) Lion b) Tiger c) Leopard d) Elephant

11. This state with the largest forest cover in the country is also the second-richest in mineral deposits. Its forests are being destroyed due to effects of open-cast mining of coal, iron ore, bauxite, and copper. Name it.

- a) Uttar Pradesh b) Himachal Pradesh
c) Arunachal Pradesh d) Madhya Pradesh

12. Following is the most widely discussed impact of climate change:

- a) Increase in average sea level b) Deforestation
c) Soil erosion d) None of the above

13. Which sector is the largest emitter of greenhouse gases in India?

- a) Transport b) Domestic
c) Agricultural d) Electric power generation

14. CFCs (chloro-fluoro-carbons) are greenhouse gases that have caused a rise of 0.3 °C in the global temperatures in the past century. Name the CFC that is used in refrigerators.

- a) Carbon dioxide b) Freon c) Methane d) Ammonia

15. Biogas is a methane-rich gas formed by fermentation of animal dung, human sewage and crop residue. The advantage(s) of biogas is/are:

- a) A clean and smokeless fuel b) Slurry left behind is used as fish feed
c) High potential in rural India
d) All of the above

16. Hydro power, which is derived from water is one of the earliest sources of energy in the country. The first mini hydel plant was set up in 1897 at the following place.

- a) Shimla b) Dehra Doon c) Kulu d) Darjeeling

17. The municipal solid waste generated in India is about 40% organic matter. Composting is the best method of disposal of organic solid waste. Where was the country's first aerobic composting plant set up in 1992?

- a) Delhi b) Mumbai c) Calcutta d) Chennai

18. Composting is one of the oldest forms of disposal of waste. It is the natural process of decomposition of organic waste that yields manure or compost. One of the following is added to the compost to get better results.

- a) Antsb) Bugs c) Snakes d) Worms

19. Of the following burning fossil fuels, which is considered to be the cleanest?

- a) Coal b) Natural Gas c) Oil d) None of the above

20. Over the last 100 years global sea level has risen by about

- a) 20 - 25 cm b) 10 - 12.5 cm c) Both the above
d) None of these

Answers : 1.b 2.c 3.a 4.b 5.a 6.c 7.b 8.b 9.a
10.a 11. d 12.a 13.d 14.b 15.d 16. d 17.b 18.d
19.b 20. b

Project: GEO THERMAL ENERGY

KAUSHIK R. I sci 'c'

Geo thermal power plants use super heated fluid from the earth's Geo thermal resource to generate electricity. This type of natural energy production is extremely environmentally friendly and used in many places around the globe.

Principle: Unlike other power plants that rely on coal or fossil fuel to harness energy, geo thermal plants use super heated fluid from earth's geothermal resource to generate electricity. This heat comes from magma. Over thousands of years , rain water seeps through cracks in the earth's surface and collects in the under ground reservoirs. The magma heats the water until it becomes a super heated fluid. The production wells bring the super heated the earth's surface, where is used to generate electricity.

Working : To reach the super heated fluid , wells are drilled 1.5km to 3km below the surface of earth. These wells are called production wells. Under its own pressure , the super heated fluid from geothermal resource floes naturally to the surface , through these wells. As the liquid flows towards the surface, the pressure decreases, causing a small portion of the fluid to flash into steam. At the surface , the fluid and steam mixture flows through surface pipeline and into well head separator. Here the pressure of fluid is reduced. Therefore large amount of fluid rapidly vaporize and flash into high pressure steam. The fluid that is not flashed into steam flows to two more vessels where an additional amount of steam is obtained. All of the steam is delivered into a turbine. The fluid that is not flashed into steam is injected back to earth through injected wells. The pressurized steam obtained is then channeled in a turbine which begins to turn under the large force of steam. This turbine is linked to the generator which generates electricity.

[This project won state level award and is selected for national level]

