

## Science EXPRESS

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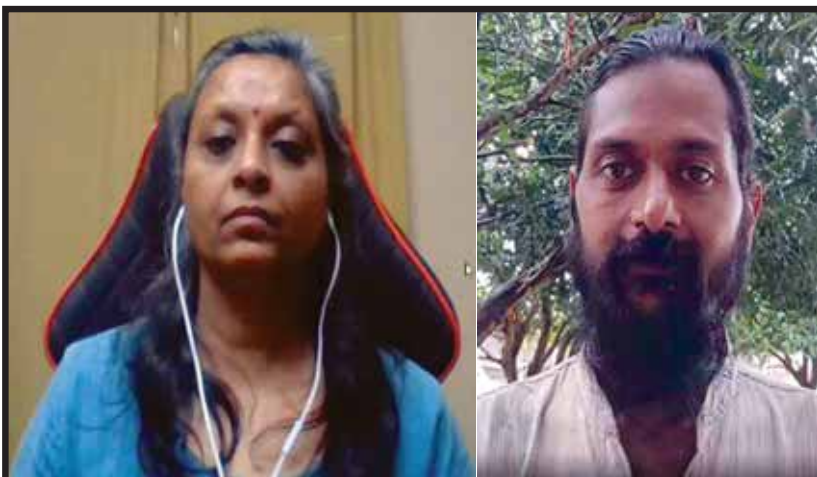
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# Our Science Center Activity

- ISO/ICO competitive test
- Computer lab, VTP, KVK
- Braingym
- Library - books and toys (Special 50% discount)
- Digital Education for std 8th and 9th of Science, Maths and English
- Sections like Museum Auditorium, Physics, Chemistry, Biology and Maths lab
- Outdoor innovative modern models based on science principles in Natraj Park and Solar park
- We organized two webinars on Bio enzymes by Dr. Priti Rao-Bangalore in which she explained how to make bio-

enzymes at home and its usefulness and shri Shrikant R.G. - Kerala and shri Kishorbhai Bhatt-Bhavnagar explained about Bio enzymes and chemical free living



**Dr. Priti Rao**

**Shrikant R.G.**

and they appreciated how Indians follow our environmental culture in day to day life.

- Procedure to make bio enzymes at home is available on our YouTube channel Science City Bhavnagar.
- For many more activities visit our web site [www.sciencecity.co.in](http://www.sciencecity.co.in)



## Magic Machine

# MULTIFACET BIOENZYMES

It's been more than few decades, when our lives started revolving around dreadful chemicals. Don't we all get to hear this "Kill the germs", why are we bent upon killing the germs? These chemicals are ruling our kitchens, our wardrobes, our bathrooms, our rooms, our cars, our body. The act of cleaning is eliminating the lives in our air, water, soil and space. Our planet is a living planet because of these microbes, but we are bent upon killing them, aren't we heading towards suicide? These chemicals are not just killing our surroundings but also making it vulnerable to any kind of attack. Let's look into the future of using these chemicals to kill all the germs - the surroundings and our body is completely sterilized from all the microbes and it's kind of vacuum world - next what? don't you think it's easy for any bad microbes

to attack us easily without any hinderances? We have concealed ourselves so much that our body's immunity is so weak that it cannot stand any kind of infection. We are making our own world this vulnerable.

For making the microbial shield around us to fight against all the external attacks, Bio Enzymes does a wonderful work.

### ➤ Guidelines for using BIO ENZYMES

1. Wipe your home / doors / tables/ chairs / mirror
2. Wipe your floor
3. Wipe your car
4. Spray in your homes / Office / Cars
5. Spray on your curtains / door mats/ sofas
6. Use in your laundry
7. Use in your bath water
8. Wipe your hands

There is absolutely no need to panic. Simple steps can take care of us safely without destroying the microbes in our surroundings, be it any external factor. These microbes are shield to lives, and today we are destroying them at every level. We need to understand, earth is living planet because of these microbes. Earth knows to take care of herself we are just healing hands.

Bio Enzyme is the





complex solution made from fermentation of kitchen waste, has majorly three types of Enzymes Lipase, Protease and Amylase. They do not break our food chain unlike the chemicals do by killing or destroying the germs. The germs are part of our food chain. Bio Enzymes dissolves them and continue the food chain. We have hardly 5% of bad bacteria and to manage this 5% we are destroying other 95% of good bacteria that works as shield to us. This is another major cause for bringing in ecological imbalance. We need to work towards making our shield more prominent than destroying it by these chemicals.

Soil and Soul has been working in this field for more than a decade to bring in a w a r e n e s s across the globe. These Bio Enzymes are getting sprayed in Malaysia, some part of America to sanitize the surroundings. This simple solution has antibacterial, anti-fungal and anti-viral

properties. Lot of research has gone into this and it has been proven to be more effective than any other chemicals in the market. The best part is that it does not harm our plants, soil, air or water. It helps in reviving all our resources naturally. Spraying Bio Enzymes on regular basis also improves the air quality, though research on this is still going on. This can improve the water quality of our lakes & river too.

### ➤ PREPARATION

It's very simple fermentation process. We just need 3 ingredients and patience for 90 days. Jaggery, Fruit peels, Water in the ratio of 1:3:10 and a plastic container. For Example take 100g of Jaggery, 300g of Fruit peels and 1L of water.

### ➤ PRECAUTIONS

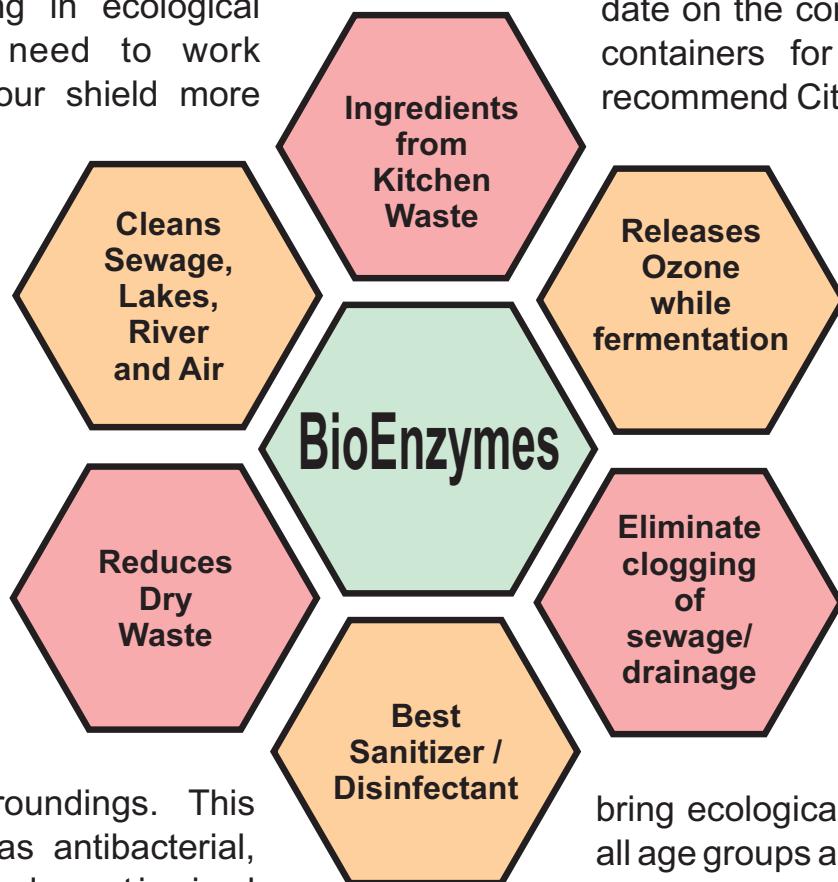
Container to be opened everyday at least for first 10 days to release the gas, then, it can be opened once in 20 days, stir it up whenever you can. Do not fail to mention the

date on the container. Avoid glass containers for fermentation. We recommend Citrus fruit peels along with other fruit peels for all the cleaning purpose. Please avoid Garlic, Onion, Papayas and Melons for the unpleasant odor.

### ➤ ADVANTAGES

Natural, no side effects, sustainable, one solution to manage all our cleaning and to

bring ecological balances, safe for all age groups and animals.





## Resonance

# Corona's fear increased the friendship with the computers



After a period of five-and-a-half months of corona, when schools and educational institutions are reverberating, the students and parents are also feeling happiness and also fear.

Millions of people died of plague years ago, now if we check the number of deaths in the world of 3 months, from April to June today, your fear of corona will be lessened. Such as 3,14,686 people died from corona, 3,69,602 from cold-cough, 3,40,584 from malaria, 3,53,696 from suicide, 3,93,479 from road accident, 5,58,471 from alcohol addiction (After the lockdown there was a scuffle for alcohol) 8,16,498 from tobacco and 11,67,714 people died from cancer.

A few years ago, HIV-AIDS caused so much fear that it killed 2,40,950 people in three months! Then why such fear? Yes, the security measures for it are not to be

forgotten - masks, social distancing and hand cleaning!

Fear has become more annoying than disease! So, there is no need to be afraid as educational institutions are starting with full security.

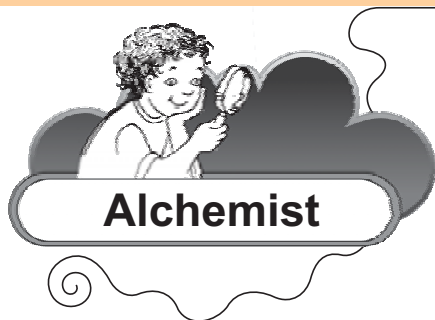
During this time, online education has turned students towards the use of computers, mobiles and laptops, the future of which will be even more monstrous than the corona.

At a time, parents were trying to keep students away from mobiles and computers, but today the situation is reversed!

But the limitations of the use of computer-mobile have to be considered now when the schools are opening. A recent study in Britain found that notebooks and pens teach more effectively than soft screens!

Let's see what you think now!



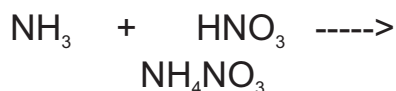


# Ammonium Nitrate



Recently on 4<sup>th</sup> August, 2020, ammonium nitrate kept in a godown of the capital of Lebanon, Beirut, exploded in a fire that killed many people and injured thousands of people. Many such incidents have occurred in the past due to ammonium nitrate. Today we will learn in this article what is ammonium nitrate that made people of Lebanon cry.

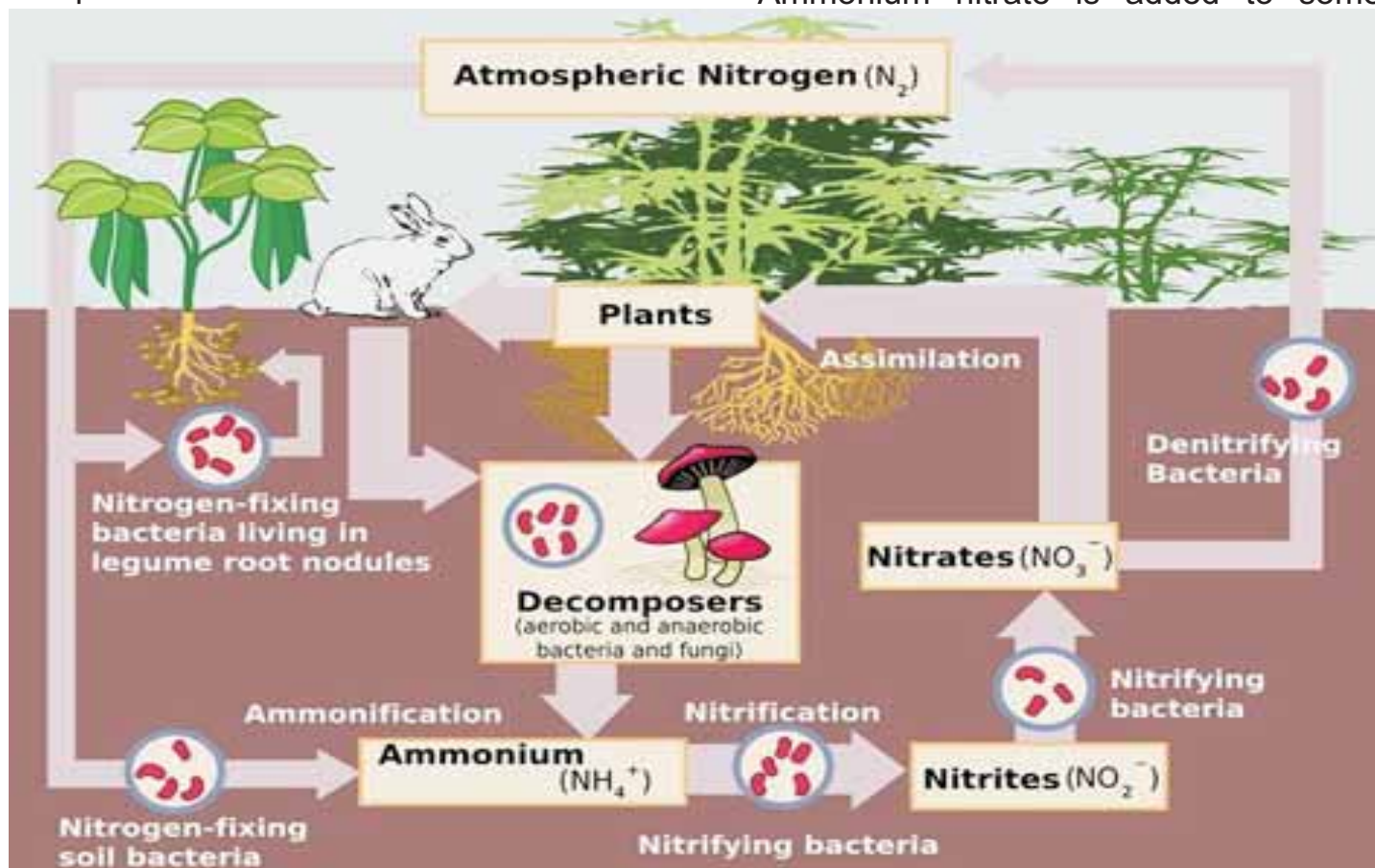
Ammonium nitrate ( $\text{NH}_4\text{NO}_3$ ) is a colourless, crystalline substance weighing 80.05 g/mol. Its melting point is  $170^\circ\text{C}$ , its boiling point is  $200^\circ\text{C}$ . Large amount of ammonium nitrate is produced industrially by processing ammonia and concentrated nitric acid. It is an inorganic compound.



Ammonia Nitric acid  
Ammonium Nitrate

It is very soluble in water. It is also soluble in alcohol and ammonia. It is mostly used as a chemical fertilizer. The nitrogen present in it plays a very important role in the growth of plants. When it is added in the farm and if it rains, it has no effect. The nitrogen in the form of ammonia is easily absorbed by the plants from the soil. But nitrogen in the form of nitrate is separated by denitrifying bacteria in the form of  $\text{N}_2$  and  $\text{O}_2$  which can be useful for the crop later.

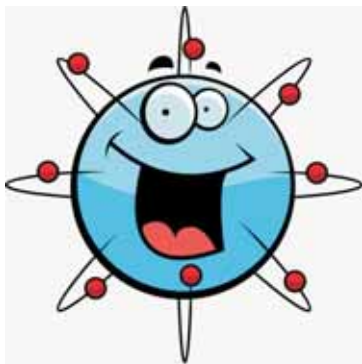
Ammonium nitrate is added to some





# Positive - Pascal

## Hide & Seek



Scientists were playing hide & seek in heaven.

Einstein was seeker.

Newton didn't hide & stood in a square of 1 meter.

**Einstein:** I found you Newton!!Thhappa!!!

**Newton:** You are Wrong.

I am not Newton.

As I am standing in 1-meter square, I am Newton/per mt sq.

So, I am Pascal.

## Healthy Atom

**Atom 1:** I just lost an electron.

**Atom 2:** how u feel?

**Atom 1:** positive.

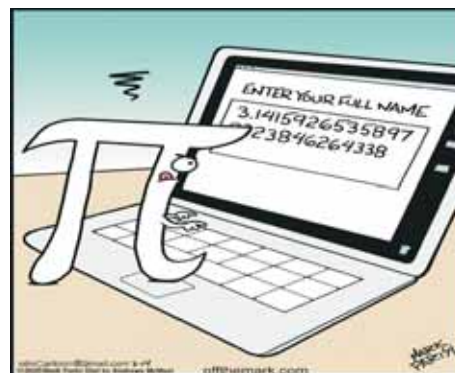
## Chemical Banana



What do you get after reaction of a Barium atom with two sodium atoms?

Ba Na Na = BaNaNa

## User Name



One day  $\pi$  was trying to make Facebook account but could not succeed.

Why?

Because its user name never ended.

## Nights of the year

**Teacher:** How many nights are there in whole year?

**Raju:** 10 nights

**Teacher:** How?

**Raju:** Navratri and Shivratri= 10 nights

## ENO

The company that makes ENO may not have even dreamed that the medicine of gas, acidity will be used in making cakes and dhoklas in India.

Also, in case of acidity after eating dhokla, they will use ENO's pouch again for curing it.





# Colour changing liquid

## Equipment:

test tube, tincture iodine, water.

## Method:

- First fill half of the test tube with water.
- Add 3 to 4 drops of tincture iodine and stir it. You can see that the color of the water changes.
- Now add 4 to 5 ml of petrol. Cover the mouth of the test tube with bottle cap or aluminum foil and shake it. Observe what happens.

## Observation:

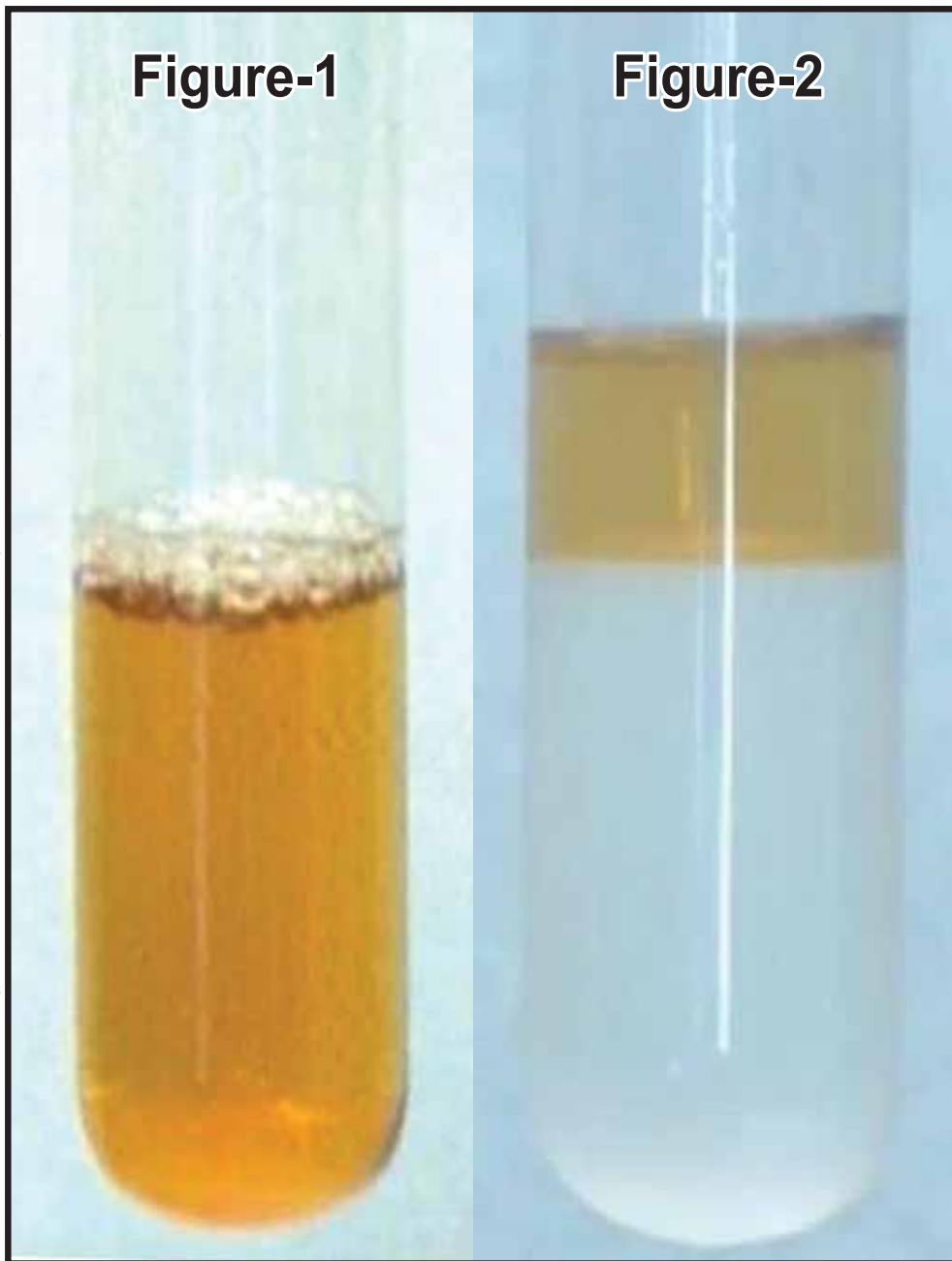
When petrol is added to the test tube and shaken, the colour of iodine solution disappears and the colour of the petrol changes. Why?

## Explanation:

Tincture iodine and sodium iodide solutions are made in the mixture of alcohol and water. The solubility of iodine is higher in petrol than in alcohol. So, by adding petrol to the test tube and shaking the iodine solution, the iodine dissolves in the petrol and the water becomes colourless and the colour of the petrol changes.

Friends, what happens if we use another liquid like petrol instead of petrol?

Will such a result be obtained? Write to us.

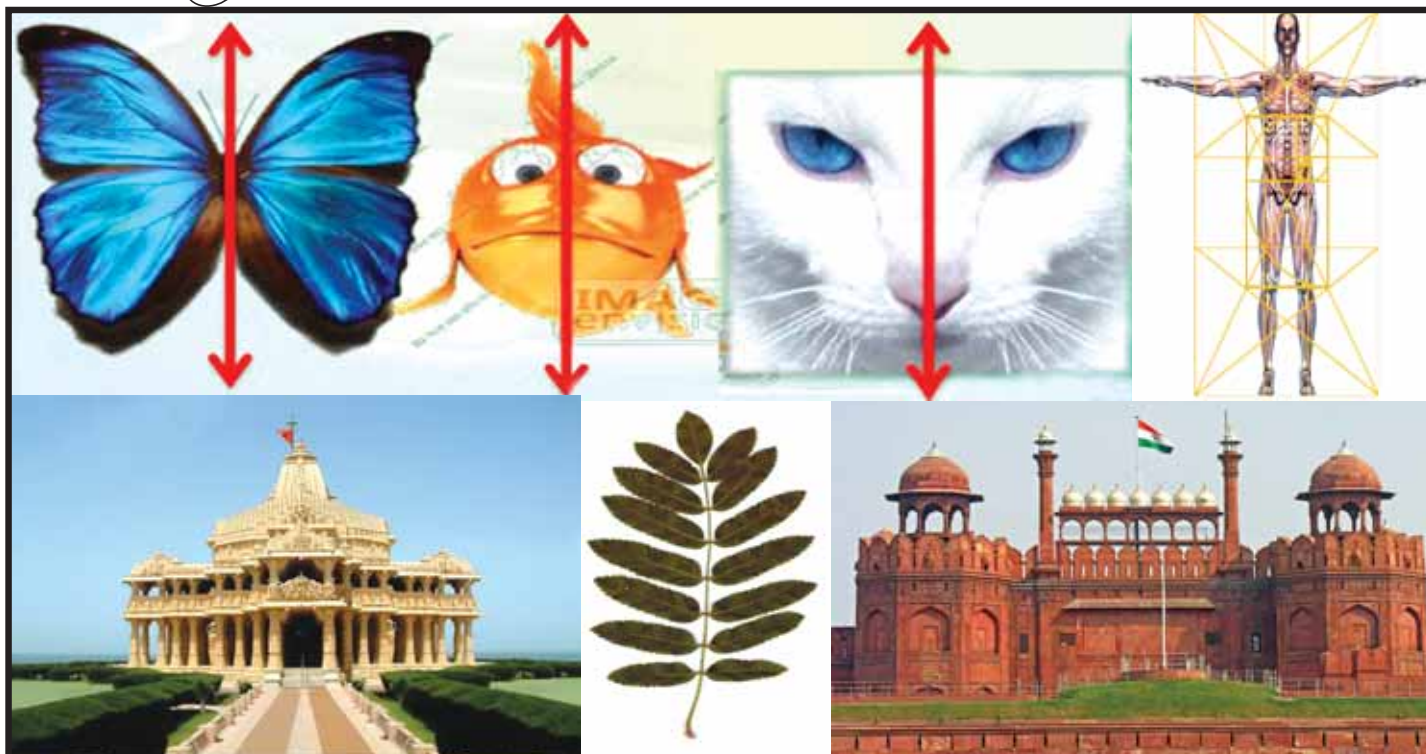






Brain X-Ray

# Symmetry in Monnument



The hidden qualities in the creations of nature have been put in education by educators, painters and architects for learning and understanding. One of them is symmetry. If you look closely at the figures given here, you will understand that if we draw a vertical line in the middle of the bodies of most animals, we see almost similar structure on both the sides. The two pieces of apple which are cut in the middle have a similar structure. Let us know about symmetry.

**Mirror Symmetry:** Mirror Symmetry means that if we stand facing the half of the mirror, the inner reflection and the outer half of the original part both look similar and they both together look like the original object.

**Glide Reflection symmetry:** The leaves on either side of the tree branches are arranged at almost equal distance and at certain angle. There are also many similarities between the leaves and the petals of the same kind of trees. Even in such small things in nature there is an accuracy for equality.

We have learned a lot by looking at the creations of nature which can be found in the architecture of our ancient sculptural works, temples, mosques, churches, gurdwaras. Symmetry can be found in pillars and domes of temples and it can be also found in other pieces of our ancient art. It can be seen even in the formation of cultural towns like Lothal and Harappa. Streets were in the the middle and the houses of uniform construction on both sides of the streets may have been inspired by nature. The oldest Hindu temple in Kuala Lumpur, the Sri Maha Mariamman Temple, built in 1873, also has beautiful symmetry in its constructed.





For  
notice  
board

## for students of standard 4th to college

**Objectives :** ISO-ICO exams develop children's attitude towards science - maths, Computer and logic and cultivate creativity amongst them and help them in comprehensive development.

To get ready for competitive exams like UPSC, GPSC, RBI, SBI, IPS, SSC, LIC, INDIAN RAILWAY etc., gain confidence and achieve success.

**ISO fees: Rs.70**

**Date :** 03-12-2020 (changes can be made)

**Section :** 7 section of std 4th to 10th

**Time :** 90 minutes - 10:00 am to 11.30 am

**Structure :** Science-Environment based MCQ

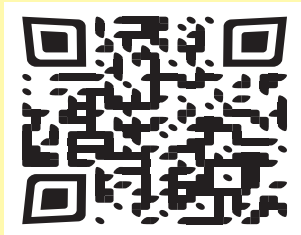
**ICO fees: Rs.70**

**Date :** 10-12-2020 (changes can be made)

**Section :** 7 section of std 5th to 12th and college

**Time :** 90 minutes - 1:30 pm to 3.00 pm

**Structure :** Computer, IT, IQ and Maths based MCQ



SCAN ME



**Benefits**

1. Rs.2.50 lakhs prizes to 721 students.
2. One-year free Subscription of Science Express as consolation prize.
3. Winners will get prize cheque and colourful certificate will be given to all the participants.
4. Curriculum based workbook will be given for preparation.



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