VIPNET NEWS—VIGYAN PRASAR NETWORK OF SCIENCE CLUBS

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COVID-19

STAY HOME
STAY SAFE
I remember the pledge we used to recite everyday in our school... India is my country. All Indians are my brothers and sisters. Possibly you all have done the same! Today, we realise its impact when the entire nation is passing through a very tough time of facing the pandemic CoVID-19. If all Indians had not shown their resilience, power of unity and love for the nation, we would not have contained the pandemic to this extent. As per World Health Organization (WHO), nearly 213 countries are now in grip of it. Perhaps, it is the maiden disease in the history of the world that has affected humankind to this extent.

Today, every sector is under great challenge—be it banking, healthcare, infrastructure, retail, information technology, telecom, education or transport. There will be hardly any person who had not been affected by it. Beyond the individual challenges, however, there are bigger ones. Manufacturing units (except essential services), public transport, markets, malls, hotels etc. are closed. Schools and colleges could not conduct their examinations; new sessions could not commence; new admissions are on hold; and teachers are under pressure to cover the syllabus. Challenges faced by the frontliners—the doctors, nurses and other healthcare workers—who are working untiringly to save the lives of the patients are even bigger. There are challenges of procuring large number of medical equipments and personal protection equipments (PPEs).

Our VIPNET clubs could not carry out their field-based activities. They could not celebrate the national or international days. Therefore, we have decided to waive off and relinquish them from submission of March and April 2020 reports. It is extended to only such clubs who have submitted at least one report in the year 2019.

When we look at the other side of the lockdown, we realise that it gives us opportunities in many ways. Now we have time to spend with the family, play innovative indoor games, shun junk food, explore new skills, and more. Many have explored the use of Information Communication Technology (ICT) for education. The lockdown has offered opportunities beyond the individual levels as well: there is a drastic drop in pollution level, huge amount of natural resources are saved; sound pollution is at minimum and rivers are getting cleaner. It appears as if the nature has come closer to us!

It is true that challenges test our potential and opportunities make us realise our strength; but CoVID-19 is a huge price to pay for it. Vigyan Prasar has brought out a special issue of Dream 2047 for the month of May 2020 on CoVID-19. Let’s use these information and knowledge to ensure that the world does not face another pandemic in future.
Quarantine for the Betterment of the Society

Sweta Srivastava

Since the outbreak of the novel coronavirus, many lives have been lost. Day by day, the situation is worsening. Number of globally infected cases have reached about 2,414,098 and it is increasing at a fast pace. Nearly, 165,153 people have lost their lives (as of April 20, 2020). While going through this war-like situation I thought of describing my quarantine life.

In India, there was a lockdown announced for 21 days, which was to end on 14th April 2020. Looking at the situation, and upon receiving requests from several Chief Ministers of the States, our Hon’ble Prime Minister had to extend it till May 3rd, 2020. I, like many others, tried to utilise this time in a productive manner. I am staying at home and following the steps suggested by our Prime Minister to the citizens. I am following the guidelines of social distancing and mostly keeping myself isolated in my room. I am a civil-service aspirant and my routine has not changed much. Along with studies, there are several household works that are to be carried out now. I have learnt to cook several new dishes. In my leisure time, I am using social media platforms for entertainment and connecting with my friends and extended family. But the overall situation makes me worried and anxious. Going through the columns of the newspaper on economic crisis and recession all over the world makes me even more worried. This also made me think how the government is going to deal with the situation in future.

Amid COVID-19, Indian Government has taken several initiatives to improve the healthcare system of the country. There is an urgent need of resources like PPEs, ventilators etc. to tackle such emergency situations. Doctors and healthcare workers are the real warriors who are working round-the-clock to save lives. It is our responsibility to cooperate with them by staying at home and not creating extra pressure on our healthcare systems. The need of the hour is to maintain discipline and follow the instructions until everything goes back to normal.

It is extremely painful to see the situation of the migrant workers and daily-wage earners. The pandemic has affected their life as well as their health. They are not been able to fulfil their basic requirements. People having enough resources must contribute to help them so that they can tide over this tough time.

On 22nd March we had “Janta Curfew”. Our Hon’ble Prime Minister requested us to show solidarity with the people fighting against coronavirus. I literally had goosebumps as it brought so much positivity in me as I felt proud of being a part of the 130-crore people’s family. On 5th April at 9 p.m. for 9 minutes the whole country again stood united to acknowledge the nation’s fight against the pandemic.

Effective governance is playing a vital role in curbing the spread of the virus. Special efforts are to be made to support those who are in distress. They should not be left out of social security. Rules are to be followed, personal hygiene should be maintained, every fact should be checked before accepting it or sharing it through social media and scientific and rational ideas should be promoted.

Breathe more. Stress less. Keep the pressure down. Use the 4-7-8 breathing technique to lower your stress level.

1) Close your mouth and **inhale** through your **nose** to a silent count of 4.
2) **Hold** your breath for a silent count of 7.
3) **Exhale** completely through your **mouth** to a silent count of 8.
4) **Repeat** the cycle **three more times** for a total of **four** breaths.

(Image courtesy: Healthy at Hopkins)
While staying at home, following things are to be practiced to stay safe and healthy:
- Start the day with stress-relieving breaths which help you relieve anxiety and reset the autonomic nervous system.
- Eat well as good nutrition is essential in stressful times;
- Use social media conservatively;
- Practice Mindfulness and express gratitude; and
- Disinfect surfaces using regular cleaners or soap solutions.

**HOME-MADE MASKS**

1. Take two 10”x6” rectangles of cotton fabric.
2. Use tightly woven cotton. Stack the two rectangles.
3. Fold over the long sides ¼ inch and sew. Then fold the double layer of the fabric over ½ inch along the short sides and stitch down.
4. Run a 6-inch length of 1/8-inch wide elastic through the wider stitched section on each side of the mask. You can use hair bands if you do not have elastic at home. These will be the ear loops.
5. Gently pull on the elastic so that the knots are tucked inside the stitch.

Gather the sides of the mask on the elastic and adjust so that the mask fits your face. Then securely stitch the elastic in place to keep it from slipping.

This is how you can make your own mask and keep it clean. Slowly remove it whenever required and wash it regularly. Send us the photograph of each step of the mask you prepared.

(Source: Centers for Disease Control and Prevention)

**HON'BLE PRIME MINISTER EXHORTED THE CITIZENS TO FOLLOW SEVEN STEPS IN THEIR FIGHT AGAINST THE PANDEMIC:**

- First, to take special care of the elderly, especially those who have chronic disease.
- Second to completely adhere to the ‘Lakshman Rekha’ of Lockdown and Social Distancing; use homemade face-covers and masks without fail.
- Third to follow the instructions issued by AYUSH ministry to enhance immunity.
- Fourth to download the Arogya Setu Mobile App to help prevent the spread of corona infection. Inspire others to download the app as well.
- Fifth to take care of poor families; to fulfil their food requirements.
- Sixth to be compassionate towards the people who work in every individual business or industry. Do not deprive them of their livelihood.
- Seventh to pay utmost respect to our nation’s Corona Warriors – our doctors and nurses, sanitation workers and police force.

(Source: https://www.narendramodi.in/)

*The author is Co-ordinator VP-UP0165; Sector H 3/738 Jankipuram; Lucknow 226021*

**Last date of receiving entries:** 25 May, 2020.
**Two best entries get the book “Fun and Science at home” as a prize.**
**Please mail your entries at:** Curiosity@vigyanprasar.gov.in
The sky map is prepared as per the coordinates of Nagpur (21.09°N, 79.09°E). It includes constellations and the brighter stars. For viewers south of Nagpur, constellations of the southern sky will appear higher up in the sky, and those of the northern sky will appear nearer the northern horizon. Similarly, for viewers north of Nagpur, constellations of northern sky will appear higher up in the sky, and those of the southern sky will appear nearer the southern horizon.

The map can be used at 10 PM on 1st May, at 9 PM on 15th May and at 8 PM on 31st May.

MAY 4, 5
ETA AQUARIDS METEOR SHOWER
The Eta Aquarids is an above average shower which produces up to 60 meteors per hour at its peak. Though mostly visible in the Southern Hemisphere, it can reach about 30 meteors per hour in the Northern Hemisphere. It is produced by dust particles left behind by the comet, Halley, which has been known and observed since ancient times. The shower runs annually from April 19 to May 28. It peaks this year on the night of 4th and morning of the 5th May. The nearly full moon will be a problem this year, blocking out all but the brightest meteors. But if you are patient, you should still be able to catch a few good ones. Best viewing will be from a dark location after midnight. Meteors will radiate from the constellation Aquarius, but can appear anywhere in the sky.

MAY 7
FULL MOON, SUPERMOON
This is the last of four Supermoons for 2020. This phase occurs at 16:15 IST. This full moon was known by early Native American tribes as the Flower Moon because this was the time of year when spring flowers appeared in abundance. It has also been known as the Corn Planting Moon and the Milk Moon. The Moon will be near its closest approach to the Earth and may look slightly larger and brighter than usual.

MAY 23
COMET ATLAS
Newly discovered comet Atlas will make its closest approach to Earth at a distance of 72 million miles (116 million kilometres). In the months following this close approach, the comet is expected to brighten. Although comets are extremely difficult to forecast, some astronomers believe that comet Atlas could brighten to a magnitude of between +1 and -5. This could potentially make it the second brightest object in the night sky beside the moon.
Tobacco is Injurious to Health

Santosh Kumar Mishra

Tobacco is a product extracted from the leaves of the tobacco plant. There are more than 65 species of tobacco and *nicotiana tabaccum* is the main source. However, most of the tobacco from northern India and Afghanistan comes from the species *Nicotiana rustica*. The growing use of tobacco is a cause of great concern around the world due to its harmful effects on health.

Non-communicable disease (NCDs) or chronic diseases like heart attacks, stroke, cancers, chronic respiratory diseases and diabetes are some of the main causes of death worldwide. According to WHO report, NCDs are responsible for 70% of the deaths worldwide. In India a total of 5.87 million deaths (61%) were estimated to be due to NCDs. Cardiovascular diseases contribute to 45% of all NCD deaths followed by chronic respiratory disease (22%), cancer (12%) and diabetes (3%). Tobacco is a major risk factor for a number of NCDs affecting all age groups. Use of tobacco increases the risk of death from NCDs.

Composition of tobacco
The smoke generated by burning of tobacco contains more than 4000 chemical compounds and approximately 60 known cancer-causing agents also known as carcinogens. Many of these compounds occur naturally in tobacco leaf whereas the rest of the compounds are generated when the tobacco is burned. Some of the major components are mentioned here:

1. **Nicotine** – Nicotine is a fast acting and highly addictive drug or chemical present in tobacco leaves. It is noncarcinogenic but it is the main component that keeps the smokers addicted to tobacco.
2. **Carbon monoxide (CO)** – It is a poisonous gas. It reduces the amount of oxygen in blood and decreases muscle and heart function. It causes fatigue, weakness and dizziness.
3. **Tar** – Tar consists all the particulate matters generated by burning of tobacco. It contains several cancer-causing chemicals such as benzopyrene. It also contains nitrogen oxides, carbon dioxide and carbon monooxide.
4. **Other major compounds** – Toluene, proionaldehyde, pyridine, quinoline, resorcinol, styrene, hydrogen cyanide, hydroquinone, isoprene, methyl ethyl ketone, catechol, chromium, formaldehyde, crotonaldehyde, ammonia, benzene, butyraldehyde, cadmium, aceton, acetaldehyde, and acrolein are the other major compounds produced from the burned tobacco.

**EFFECT OF TOBACCO ON HUMAN HEALTH**

1. **Cancer** – Tobacco and its by-products are associated with cancer of bladder, cervix, respiratory tract, lungs, liver, kidney, urinary bladder, pancreas, stomach, larynx, colon and rectum, oral cavity, nasal cavity etc. Smoking causes about 90 per cent of all lung cancer-related deaths. There is increased risk of death in human due to the use of tobacco and its products as compared to all the other causes.
2. **Respiratory diseases** – Use of tobacco and its products damage our respiratory system, which in turn causes many respiratory diseases. Its continuous use results in chronic obstructive pulmonary diseases (COPD), which includes emphysema and chronic bronchitis. Tobacco is also associated with acute attacks of asthma. Inhalation of tobacco through smoking causes coughing with mucous discharge.
3. **Cardiovascular disease** – Use of tobacco and its products in many cases result in coronary heart disease and stroke. These products also damage blood vessels and make the walls thicker and resulting in narrower opening. This in turn increases blood pressure and heart rate.
4. **Effect on pregnancy** – Tobacco and its products have severe effects on pregnancy also. It increases risks of early delivery, still birth, bleeding during pregnancy, miscarriage, low birth weight, abnormalities of the placenta, etc.
5. **Effect on mouth** – Tobacco affects the health of our teeth and gums. It stains our teeth and gives bad breathe. Regular use of tobacco damages the
taste buds to the extent that we are not able to taste delicious food.

6. Effects on reproductive system – Use of tobacco and its products has severe effects on the reproductive system of the users. Studies revealed that its use reduces the sperm count in men which results in reduced fertility. In women it increases risks of birth defects and miscarriage.

SECONDHAND SMOKE – When nonsmokers are exposed to smoke produced by the smokers around them, it is called secondhand smoke. Due to it, a nonsmoker also inhales smoke that contains cancer-causing agents such as nicotine and other harmful chemicals which is emitted by the smokers.

WORLD NO TOBACCO DAY – On 7th April 1988 WHO passed a resolution to celebrate an event to draw the attention to the risks of tobacco use and move towards safer and better public health for all. In 1988 only, WHO passed another resolution to celebrate 31st May as WORLD NO TOBACCO DAY. Since then, the Day has evolved as an important event to generate awareness against tobacco use.

WORLD NO TOBACCO DAY (WNTD) THEME

Every year a theme is assigned to World No Tobacco Day and events are planned around the theme. WHO provides publicity material for the theme like brochures, posters, press releases etc. The theme for 2020 WNTD was Protecting youth from industry manipulation and preventing them from tobacco and nicotine use. The theme for 2019 was Tobacco and Lung Health.

TOBACCO CONTROL IN INDIA
• National Tobacco Control Programme (NTCP) – The NTCP was launched by the Ministry of Health and Family Welfare, Government of India in 2007-08. The objective of NTCP is to increase awareness about the harmful effects of tobacco use. NTCP has taken many initiatives to introduce tobacco control laws and ensures its implementation also.
• National Tobacco Control Cell (NTCC) – NTCC is another programme initiated under the Ministry of Health and Family Welfare. It is responsible for overall policy formulation, planning, implementation, monitoring, and evaluation of the different activities under the NTCP.
• Acts/Laws – The Cigarettes and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act 2003 is an act passed by the Parliament of India to prohibit advertisement as well as regulate trade and commerce, production, supply and distribution of cigarettes and other tobacco products in India.

Tobacco is harmful to human health. So, we should avoid the use of tobacco products in every form. Tobacco makes us feel happy for a while but affects our health in a dangerous way. If we want a good, happy and healthy life we should not get addicted to it.

CROSSWORD

ACROSS
1 – Highly addictive chemical component of tobacco (8)
7 – Tobacco affects the health of teeth and gums and gives ……. breathe. (3)
9 – It is wise to say ……. to tobacco use. (2)
10 – The theme of the World No Tobacco Day 2019 was Tobacco and …….. health. (4)
11 – Tobacco is extracted from the …….. of the tobacco plant. (4)
12 – The main disease caused by tobacco products (6)
13 – When nonsmokers are exposed to smoke produced by smokers it is called ………. smoke. (6,4)
14 - Tobacco damages …………… so we are not able to taste our delicious food. (5,4)
15 - According to the theme of World No tobacco day in 1988 it’s wiser to choose ……….. over tobacco. (6)
16 - Use of …………. increases the risk of death from NCDs. (7)
17 - The poisonous gas which is mainly present in tobacco. (2)

DOWN
2 – Carbon mono oxide reduces the amount of …………. in the blood (6)
3 - The name of the chemical particles left behind by burning tobacco that consists of all the particles suspended in tobacco smoke. (3)
4 – The name of Tobacco Awareness Programme launched by Ministry of Health and Family Welfare, Govt. of India in 2007-08. (4)
5 - The theme of world no tobacco day 2014 is to ………….. tax on tobacco. (5)
6 - Tobacco ………….. our teeth. (6)
8 – The agency responsible for overall activities under the NTCP. (4)

SEND THE CORRECT ANSWERS OF THE CROSSWORD TO US.

Last date of receiving the entries: 25 May, 2020.

Two best entries get the book “Thumbprints” by Arvind Gupta as a prize.

Please mail your answers at: Curiosity@vigyanprasar.gov.in

The author is Club Coordinator, Kalpana Chawla Vigyan Club, Govt. High School Police Line, Shahdol (M.P.)
At this time of global crisis of Corona pandemic, our VIPNET club coordinators display their determination and commitment towards the society. Educating the citizens with the right information is crucial in preventing the localised spread of the virus. Many VIPNET Clubs conducted corona awareness drive in their area or locality to educate hundreds of nearby residents or locals about the symptoms, prevention, and common information about corona virus infection. Here are some glimpses:

Hargobhind Khorana Children Center (VP-PY0005) 02/03/2020
Ruthibi Science Club (VP-OD0002) 08/03/2020
Galileo Thulir Illa Science Club (VP-TN0014) 01/02/2020

Kalpana Science Club (VP-DL0024) 12/03/2020
Little Universe Science Club (VP-DL0023) 09/03/2020
Parija Vigyan Club (VP-OD00179) 07/03/2020

Dr. Arun Nagalingam, Hargobind Khorana Children Centre, Puducherry (VP-PY0005)
We club coordinators and children of our Vipnet Club really feel happy and excited with the contents and ideas covered in the Curiosity March and April issues. The Sky Map is extremely useful for us. The important days mentioned in the issue paves the way for us to plan and execute the activity in well-planned manner. We hope that the initiatives taken by Vipnet through CURIOSITY will reach to every part of the country.

Mr. Balamohan R., Activity Educator Science Club, Bangalore (VP-KA0046)
I have received the April-2020 Curiosity e-Magazine through email. It was so informative. Thank you for your efforts.

Mr. Debojit Phukan, Megamix Nature Club, Lakhimpur (VP-AS0014)
Thanks for the innovative ideas.

Suggestions, feedback, letters and articles from authors and readers are welcome. Please don’t forget to send your details along with your articles or letters/feedback.
You can contact us by email: curiosity@vigyanprasar.gov.in

Mr. Vipin Singh Rawat
Vigyan Prasar, Noida
Mail id: vipin@vigyanprasar.gov.in

Mr. Pavan Bhati
Vigyan Prasar, Noida
Mail id: pawan@vigyanprasar.gov.in

Dr. Arvind C. Ranade
VIPNET National Coordinator, Vigyan Prasar, Noida.
Mail id: rac@vigyanprasar.gov.in

Dr. Nidhi Shrivastava
Project Scientist Vigyan Prasar, Noida
Mail id: nidhi@vigyanprasar.gov.in

Write to us at: vipnet@vigyanprasar.gov.in / Contact No.: +91-790 606 6423