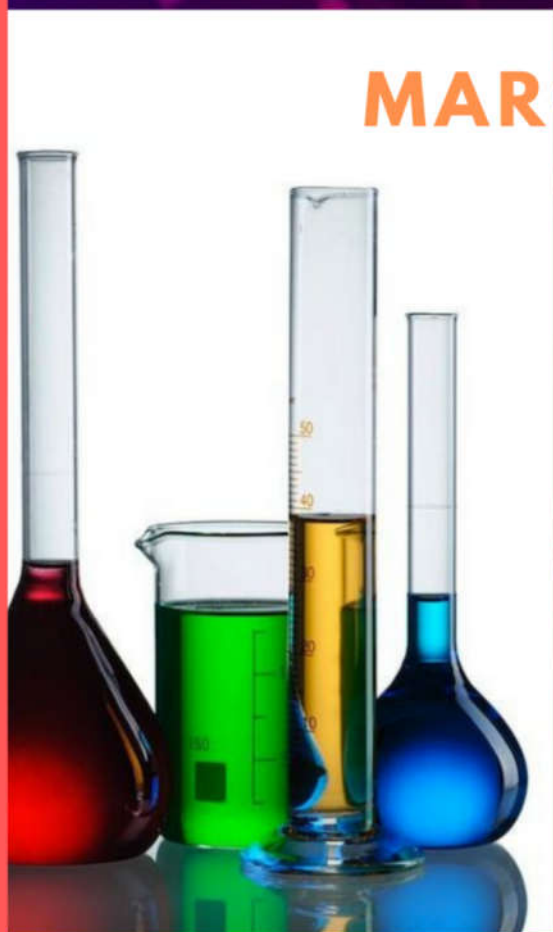


# CHEMSPARK

MARCH 2021



Department of Chemistry  
Sri Sathya Sai College For Women, Bhopal

"ONE THING THAT YOU CAN'T FAKE IS  
CHEMISTRY"

# NEWSLETTER OF CHEMISTRY

March 2021

**SRI SATHYA SAI COLLEGE FOR WOMEN**

## **PATRON**

*Dr. Sudha Pathak*  
(Principal)

*Dr. Asha Agarwal*  
(Vice Principal)

*Dr. Neena Arora*  
(Head- Chemistry Dept.)

## **FACULTY MEMBERS**

**Mrs. Kiran Shandalya**  
**Dr. Pooja Kaur Chhagar**  
**Mrs. Supriya Raman**  
**Dr. Varsha Saxena**

## **STUDENT EDITORIAL**

**Aishwarya Jha (Micro)**  
**Deepika Bhatt (Maths)**  
**Divya Kanhulkar (Maths)**  
**Tincy Abraham (Biotech)**  
**Tuba Khan (Bio group)**

## AWARDS & ACHIEVEMENTS

**Aishwarya Jha**  
**B.Sc 3rd year**

- Got 2nd prize in story telling competition
- Got 3rd prize in article writing competition
- Participated in 20th national level Microbioslate organised by dept.of Microbiology, Government Institute of science, Aurangabad in collaboration with Bioresku Science society

**Sanskriti Shiwani**  
**B.Sc 3rd year**

- Got 1st prize in intercollege youth quiz competition
- 3rd prize in traditional day competition

**Anadi Jain**  
**B.Sc 3rd year**

- 2nd prize in e-poster making competition
- 3rd rank in poetry writing competition

**Kirti Rajput**  
**B.Sc 3rd year**

- Got 1st prize in wall painting
- 3rd prize in Swacch bhopal Pratiyogita

# Current News and Discoveries.

- [Nobel Prize in Chemistry 2020 : Genetic Scissors.](#)

*Date:* October 7<sup>th</sup>, 2020.

*Source:* nobelprize.org

**Summary:** The Nobel Prize in Chemistry 2020 is being awarded to Emmanuelle Charpentier of France and Jennifer A. Doudna of U.S. , “for the development of a method for genome editing”.



Emmanuelle Charpentier and Jennifer A. Doudna have discovered one of gene technology’s sharpest tools: the CRISPR/Cas9 genetic scissors. Using these, researchers can change the DNA of animals, plants and microorganisms with extremely high precision.

- [Chemists Discover a Sulfur Molecule to Block the SARS-CoV-2 Coronavirus.](#)

*Date:* November 20<sup>th</sup> , 2020.

*Source:* Université de Genève

**Summary:** Some viruses can get inside cells via a mechanism that involves sulfur organic molecules. Chemists at UNIGE have discovered effective inhibitors and blocked the uptake of SARS-CoV-2.

- [New Semiconductor Coating Pave Way for Future Green Fuels](#)

*Date:* November 18th, 2020

*Source:* Uppsala University

**Summary:** Hydrogen gas and methanol for fuel cells or as raw materials for the chemicals industry, could be produced more sustainably using sunlight. In this study, researchers have developed a new coating material for semiconductors that may create new opportunities to produce fuels in processes that combine direct sunlight with electricity.

- [Flash graphene rocks strategy for plastic waste](#)

*Date:* October 30<sup>th</sup> , 2020.

*Source:* Rice University

**Summary:** Rice University lab detours potential environmental hazard into useful material. Scientists advance a new technique to make graphene from waste with a focus on plastic.

- [Soil-powered fuel cell promises cheap, sustainable water purification.](#)

*Date:* October 28<sup>th</sup> , 2020

*Source:* University of Bath

**Summary:** Soil microbial fuel cells proven to be capable of creating energy to filter a person's daily drinking water in Brazil test.

- **[Super cooled water is a stable liquid, scientists show for the first time](#)**

*Date:* September 17<sup>th</sup> , 2020

*Source:* Pacific Northwest National Laboratory

*Summary:* **First-ever measurements provide evidence that extremely cold super cooled water exists in two distinct structures that co-exist and vary in proportion dependent on temperature.**

- **[Pfizer and BioNtech conclude phase 3 study of COVID-19 vaccine candidate, meeting all primary efficacy endpoints](#)**

*Date:* November 18<sup>th</sup> , 2020

*Source:* [www.pfizer.com](http://www.pfizer.com)

*Summary:* **Primary efficacy analysis demonstrates BNT162b2 to be 95% effective against COVID-19 beginning 28 days after the first dose;170 confirmed cases of COVID-19 were evaluated, with 162 observed in the placebo group versus 8 in the vaccine group.**

- **[Bleach-alternative COVID-19 surface disinfectants may pollute indoor air](#)**

*Date:* December 1<sup>st</sup> , 2020

*Source:* University of Saskatchewan

*Summary:* **Cleaning surfaces with hydrogen peroxide-based disinfectants has the potential to pollute the air and pose a health risk, according to new research.**

- **[Turning Wood into Plastic](#)**

*Date:* March 25<sup>th</sup> , 2021

*Source:* Yale School of Environment

*Summary:* **Plastics are one of the world's largest polluters, taking hundreds of years to degrade in nature. A research team has created a high-quality bioplastic from wood byproducts that they hope can solve one of the world's most pressing environmental issues.**

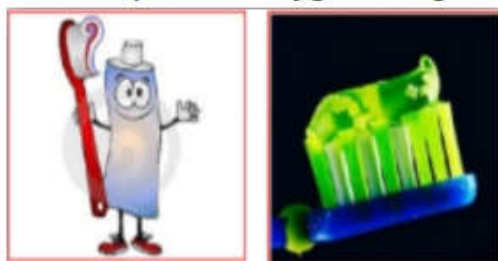
## CHEMISTRY IN OUR DAILY LIFE

Chemistry is the big part of our daily life cleaning chemicals, our emotions and literally every object we see or we touch. Our body is made up of chemical compounds, which is the combination of elements. The emotions we feel is the result of chemical Messengers, primarily neurotransmitters. Love, jealousy, envy, infatuation, and infidelity all share a basis in chemistry.

### The day we start with-Toothpaste

Ever wonder where toothpaste and mouthwash come from? What people used for toothpaste before the invention of Colgate, pepsodent or aqua fresh?

Back in the days of Buddha.....It has been recorded that he would use a "tooth stick" from the god sakka as part of his personal hygiene regimen. So .....what's in the



toothpaste of 90's?

Neem has phytochemical constituents like nimbidin, nimbin, nimbolide, azadirachtin, gallic acid, epicatechin. Catechin, and margolone

Sodium monofluorophosphate colour flavoring Fluoride foaming agents (sodium lauryl sulfate). Herbal toothpaste has gained popularity for people looking for "natural" toothpaste or for those who don't want fluoride in their dental cleansers.

### Chemistry at the breakfast table

We've all used raising agents in cooking and baking but do you know the chemistry involved? These are two raising agents used in most of the recipes, yeast and baking powder. Yeast (*saccharomyces cerevisiae*) is a micro-organism that contains the enzyme zymase that converts the sugar in bread into carbon dioxide and ethanol.

Raising agents: Gluten in the bread is fibrous compound that stretches as the bread rises and traps the carbon dioxide in an elastic framework. Yeast grows in warm environment so the bread is kept warm until it rises.

### Orange, pineapple, and strawberries are rich in vitamin C



### Coffee makes our morning fresh and energetic. The reason? Caffeine.....

Caffeine is central nervous system stimulant. It's one of the most popular drugs in the world, consumed by up to 90% of people in world in different form. Regular caffeine consumption reduces sensitivity to caffeine and higher intake is needed for the same effect.



So caffeine is considered as an addictive drug.

### How garlic chase parasite away?

The sulphurous compound is called Alliein. Alliein is synthesized form of akkiin when garlic is crushed, it's an oily, yellow liquid which gives garlic its characteristic odour



which is due to the  $-S=O$  group.

### Use of herbs/spices

Spices contain essential oils with antimicrobial properties. This oil is used as an antiseptic and disinfectant also. In Europe, turmeric is known as Indian saffron, since it was widely used as an alternative to the far more expensive saffron spice.



### Let's see some drinks to celebrate joy/to bypass sorrow:

All alcoholic drinks contain ethanol,  $C_2H_5OH$  which is one type of alcohol. Alcohol's direct action on the brain is a depressant. It generally decreases the activity of the nervous system. Alcohol can cause disinhibition i.e. inhibits cells and circuits in the brain which themselves are normally inhibitory.

### Time to go to the bed: Sleep

There is a chemical in our brain called adenosine, which binds to certain receptors and slow down nerve cell activity when we are sleeping.

## CORONAVIRUS: SANITIZERS & MASKS NOTIFIED AS ESSENTIAL COMMODITIES



WHO has advised people on the use of masks and listed circumstances favourable to its use. It says a healthy person need not wear a mask unless taking care of a person with suspected Covid-19 infection. It advises wearing a mask if one is coughing or sneezing and adds that they are effective only when used in combination with frequent hand cleaning with alcohol-based hand rub or soap and water. Fabric masks are recommended to prevent onward transmission in the general population in public areas, particularly where distancing is not possible, and in areas of community transmission. This could include the school grounds in some situations. Masks may help to protect others, because wearers may be infected before symptoms of illness appear. The policy on wearing a mask or face covering should be in line with national or local guidelines. Where used, masks should be worn, cared for and disposed of properly.

.Alcohol-based hand sanitizer contains 65% alcohol, isopropanol. Also contain some natural ingredients like tea & Aloe Vera, & some denaturalized alcohol. Both alcohol & isopropanol kill the germs and bacteria. Aloe Vera acts as an anti-infecting agent and for the moisturizing purpose.



## FACTS AND TRIVIA

1. Lightning strikes produce ozone, hence characteristic smell after lightning storms.

*Source: nasa.gov*

2. The rarest naturally occurring element in the Earth's crust is astatine.

*Source: rarest.org*

3. Car airbags are packed with salt sodium azide. When the collision take place the temperature of salt rapidly increases. These then decompose into harmless nitrogen gas, rapidly expanding the airbag.

*Source: scientificamerican.com*

4. Although oxygen gas is colorless, the liquid and solid forms of oxygen are blue.

*Source: thoughtco.com*

5. Onions releases propanethial-S-oxide it stimulates the eyes lachrymal glands when cut which what causes eyes to water.

*Source:loc.gov*

6. Superfluid Helium defies gravity and climbs on the walls.

*Source:scientificamerican.com*

7. Chalk is made up of trillions of microscopic skeleton fossils of plankton.

*Source: sciencedaily.com*

8. The human body contains enough carbon to fill about 9,000 'lead' pencils.

*Source: medindia.net*

9. Tooth enamel is the hardest substance chemical substance in our body.

*Source:healthline.com*

10. Goldfish are the only animals able to see both UV and infrared light.

*Source:sciencedirect.com*

## IMPORTANT FORMULA OF COMMON COMPOUNDS

Common Name	Chemical Formula
Alum	$KAl(SO_4)_2 \cdot 12H_2O$
Baking Powder	$NaHCO_3$
Bleaching Powder	$Ca(ClO)_2$
Bleach(laundry)	$NaOCl$
Chalk	$CaCO_3$
Chloroform	$CHCl_3$
Glycerine	$C_3H_8O_3$
Laughing Gas	$N_2O$
Lime	$Ca(OH)_2$
Marsh Gas	$CH_4$
Plaster of Paris	$CaSO_4 \cdot 1/2H_2O$
Sand	$SiO_2$
Sugar	$C_{12}H_{22}O_{11}$
Vinegar	$CH_3COOH$
Washing Soda	$Na_2CO_3$

## LOCKDOWN DAIRIES

1. I missed all my friends at the time of covid-19 , missed the food outside too.  
Had to stay away from the family for a few day , but they all got a chance to spend time with the family.  
SHALINI MISHRA  
BSC (CS) FINAL YEAR
2. Part of 2020 "lockdown"  
A great phase  
Where we spend our precious time with our family,  
Where we gave time to ourselves, free from work,  
Where we can't go outside, but we can go inside,  
Where we get to know that health and family is too important aspect of life.....  
RINKI RAGHUWANSHI  
BSC (CS) FINAL YEAR
3. The story of this unique year of my life has been special. In many contexts, this time is the time to learn a lot. No doubt This year has been made very memorable for me by the opportunity to get new experiences and learn new arts. While the gesture of dedication, loyalty, honesty, and service of doctors, police, sanitation workers and other volunteers gave a sense of gratitude, the migration of vast masses of laborers to their homes revealed the importance of their soil. The family who spent more and more time, could hardly have spent so much time, got so much love from everyone which became an invaluable treasure of my life. Adaptation to develop compatibility even in adversities has now come in us, no matter how much trouble may arise, no matter how frightening the situation may be, but we will never give up life expectancy with this resolve and we will remember our lockdown for life.  
PRAGYA TRIPATI  
BSC (CS) FINAL YEAR
4. As we all know that everything has two aspects, similarly there are two aspects to the impact of this epidemic.  
My some experience of the covid-19 through this lines-  
While another corona epidemic has spread, greenery has also spread in another nature.  
Where corona has increased such distances on one side, and on the other made a so hygienic.  
Where we are avoided food from outside, we have made our own health by eating food in home.  
Where another economy system has messed up, the other one has also come from from work from home.  
While are external expenses have come down on the other hand the time has come to save some money for the future.  
SHIVALI KHARE  
BSC (CS) FINAL YEAR

5. In this pandemic instead of sitting ideal I decided to indulge in some kinds of activities. I joined some of the online courses which are of my interest and already given the exam. I also read a fair amount of books which helped me improvising my reading skills. I also happen to cook and bake many recipes which is my favourite hobby. Also, I managed to rebuild my photography skills during this year as well.

HARSHI MEHTA  
BSC (MICRO) FINAL YEAR

6. I want to share my experience on the covid-19 lockdown during this corona viruses we all have advantages and disadvantages of this corona virus time, there was no school and colleges and I enjoying all the day with playing games, watching movies along with the family and enjoy it, cooking, meditation, dancing, singing, Sketching and almost everything which I like or not but do I spent my whole day very well. It is the best time to spend time with family and everyone is doing working from home so there is no need to step out of the house and meet with relatives you can pick the phone and call them and talk with builds more family relations but their are significant disadvantages because the online classes effect to eyes of the students due to long hours in front of the blue screen but the experience of online classes feel better and lots of disadvantages like there is no exams students are being given marks by the internals and got a general promotion but it's good news for students also and all students are very happy because of no exams but all students are missing the days in the schools and colleges.

ANADI JAIN  
BSC (MICRO) FINAL YEAR

7. It was around the beginning of March that I began to hear faint whispers of a new disease that had begun to spread in China. Back then I thought, "Oh it'll be fine, I'm sure the people in-charge will take care of it swiftly." Then, "Fast-forward about 3 months & today the world has been brought to a stand-still by this new deadly, & most importantly, very contagious disease. So, I had spent my first month just as any normal person would do that is absolutely nothing! But, as the days passed my outlook on the scenario changed, I realized that this is our new reality - this is the new normal. So, I learnt many new things in quarantine like cooking, driving, learning a new language, singing. Cooking has always been my hobby but as I shifted to hostel for further studies & started living away from home I lost it. So, I loved to cook & bake during lockdown. I baked cakes, cookies & many more new dishes for my family. And as every mother wants their children to know how to cook my mom was also very happy. I also love to drive, so I focused on improving my driving skills. And lastly was the time spent with family. All this free time gave us a much needed break to just relax & to get to know each other better.

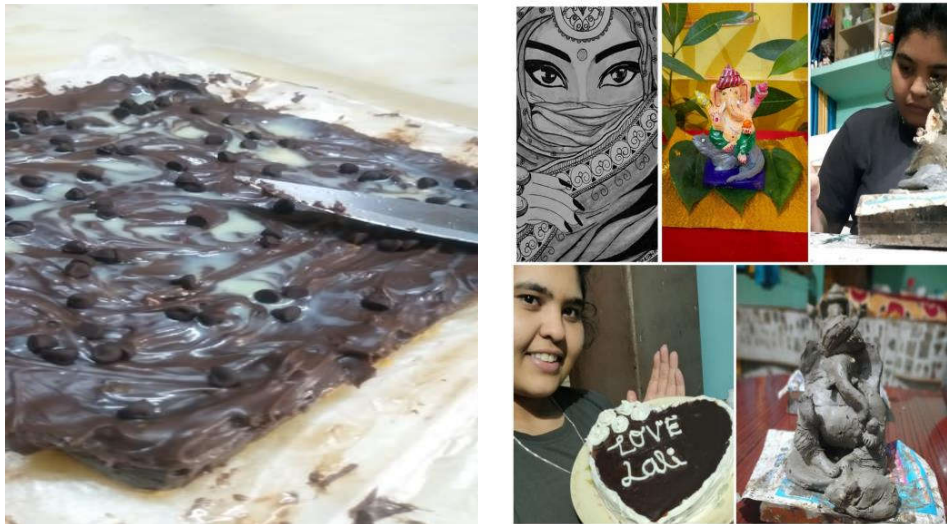
MAITRI ATRE  
BSC (MICRO) FINAL YEAR

8. Hello everyone, I am glad to share my lock down experience with you. So during lockdown, I spent my whole day with my family, my father was with me. We used to play games together like ludo, carrom. In this lock down I found my cooking skill, I made pani puri, chole chaat, cake, dhokle and so many more. I also watched many dance videos and used to dance to see them. Me and my friends also did video calls many times in a day. It was a great experience for me.....

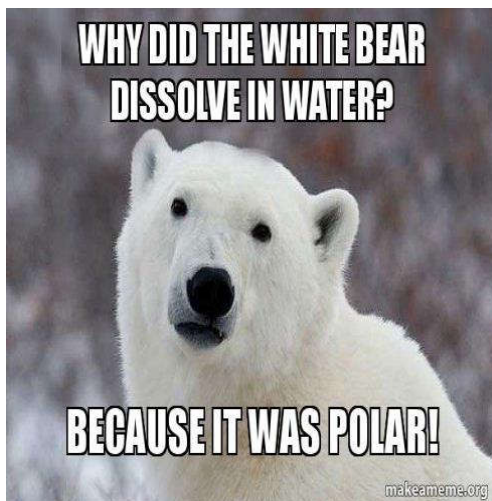
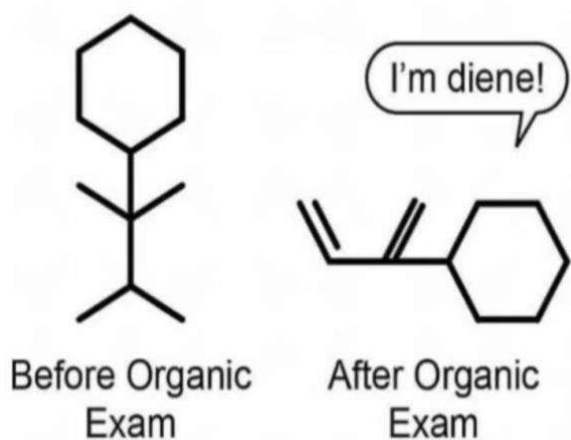
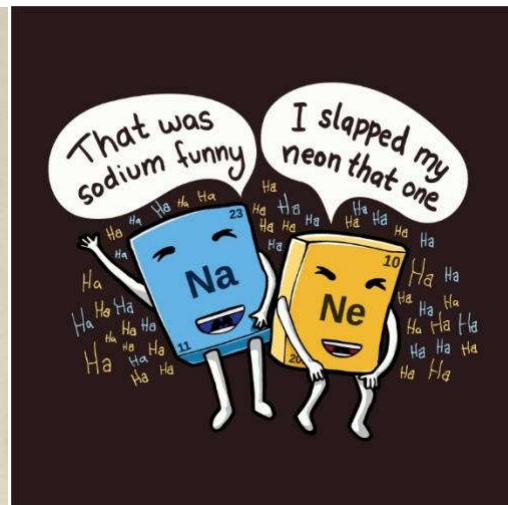
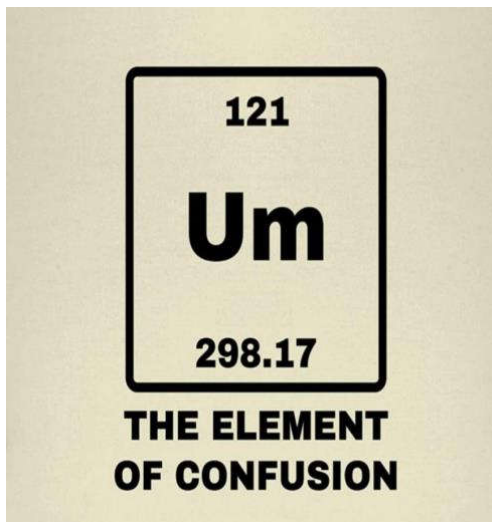
MANSI NAMDEV  
BSC (MICRO) FINAL YEAR

9. lockdown gave me lot of time to explore things that i always wanted to do but never got time to do, so i tried many things and my cooking skills are really improved. For the first time i created a ecofriendly ganeshji from soil and i really enjoyed it and i found out that i am good at sketching too. Now i would like to take out time even after this lockdown to give time to these things.

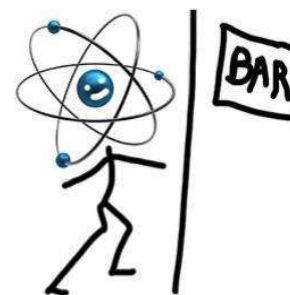
ANUBHA SHRIVASTAVA  
BSC (MICRO) FINAL YEAR



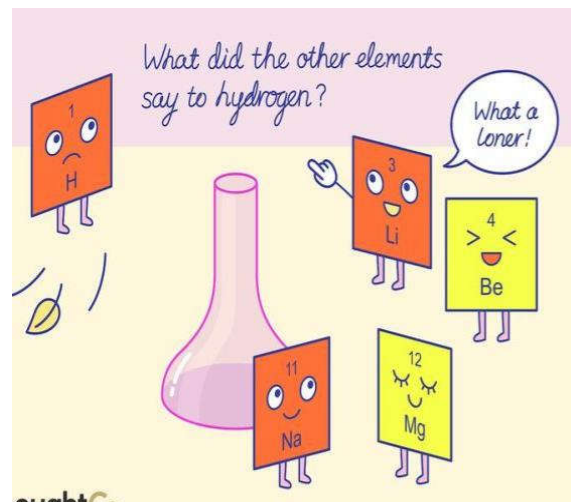
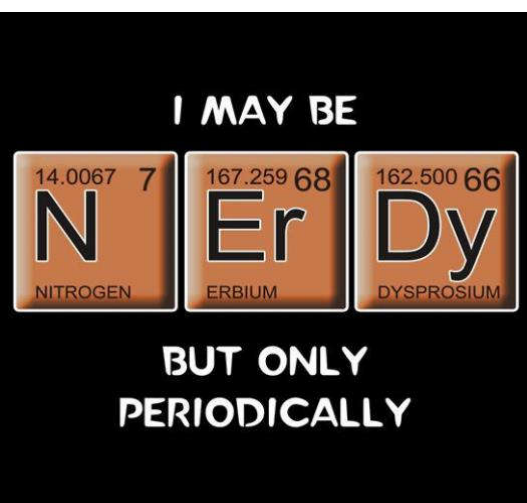
# Fun Corner



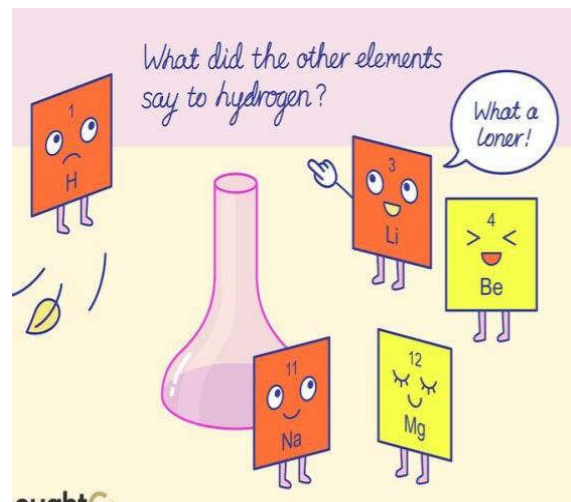
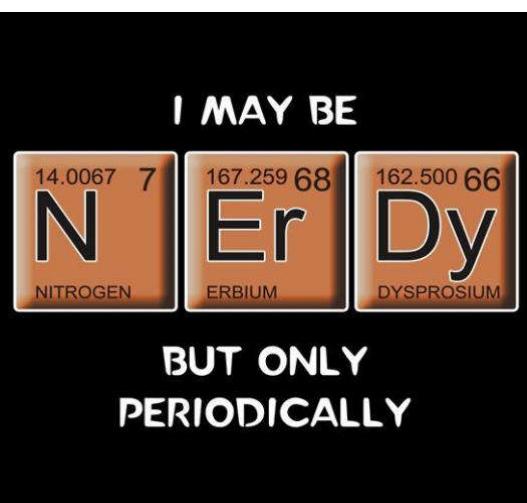
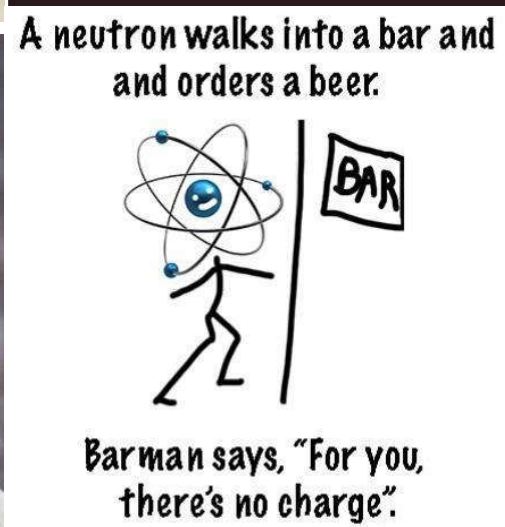
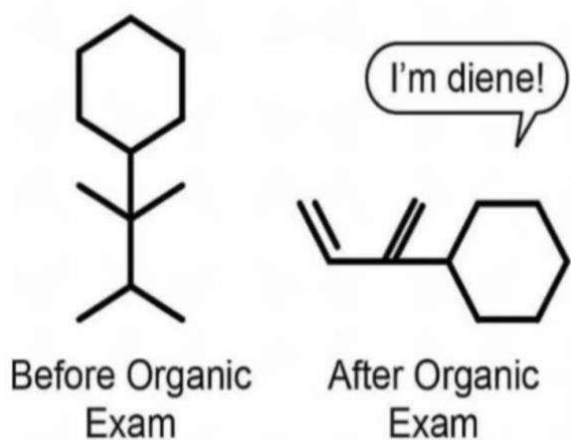
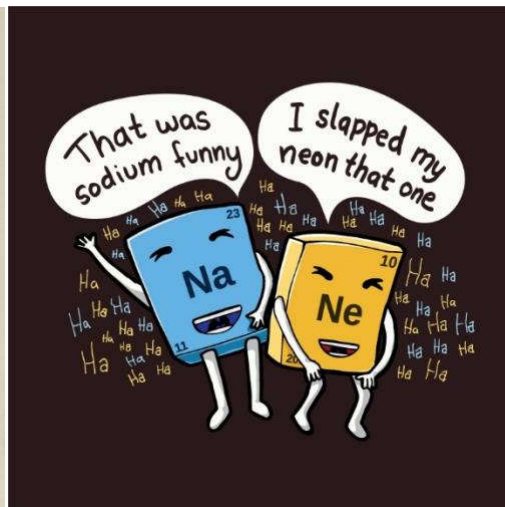
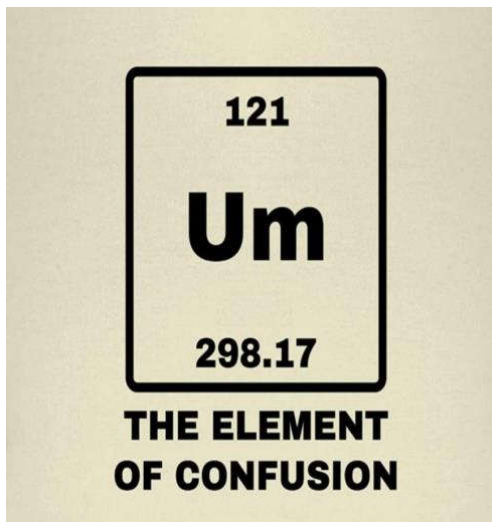
A neutron walks into a bar and orders a beer.



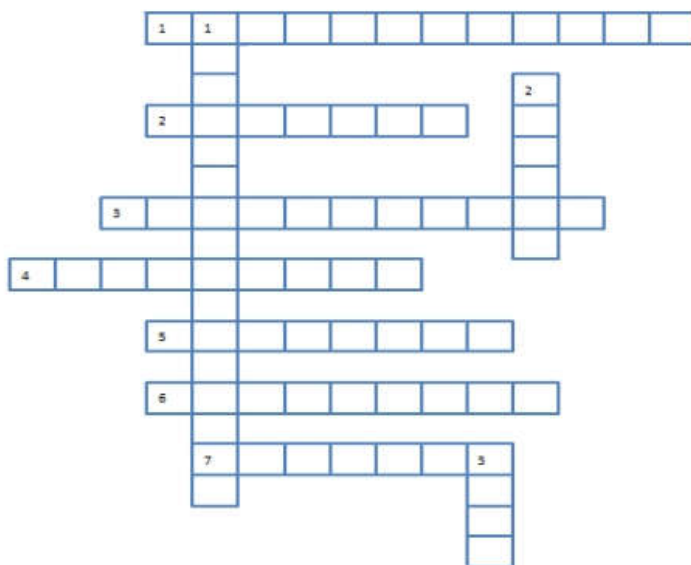
Barman says, "For you, there's no charge".



# Fun Corner



# Crossword



## ACROSS

1. The ability of metal to be flattened into thin sheets.
2. I'm metalloid used in computer chip.
3. Paper used to measure ph.
4. A property of fluid that shows resistance to flow.
5. The simplest alcohol.
6. The scientist that arranged first periodic table.
7. I'm atomic number 31,  
I'm soft and silvery metal.

## DOWN

1. ....energy is the energy needed to start reaction.
2. I'm a gas with 8 protons and 8 neutrons.
3. The amount of matter in a object is called.....

ACROSS: 1. Malleability 2. Silicon 3. Litmus paper 4. Viscosity 5. Methanol 6. Mendeleev 7. Gallium

DOWN: 1. Activation energy 2. Oxygen 3. Mass



# DEPARTMENT ACTIVITIES



**SRI-SATHYA SAI COLLEGE FOR WOMEN, BHOPAL**

National Webinar on  
**Role of Chemical Sciences and Computer Technology for Environmental Sustainability: A Covid-19 Perspective**  
 Organised by  
 Department of Chemistry and Computer Science & Application  
**18 August, 2020**  
**11:00 am - 12:30 pm**

**Speakers**

 Dr. Meena Prasadaram Chairman, SSCW	 Dr. Sujita Mishra Principal, SSCW	 Dr. Anurag Vice-Principal, SSCW	 Dr. Neema Arora HOD Dept. of Chemistry SSCW
 Dr. Parvita Dixit Professor and Head Dept. of Chemistry,	 Dr. Bharati Bhanger Associate Professor Dept. of Chemistry,		



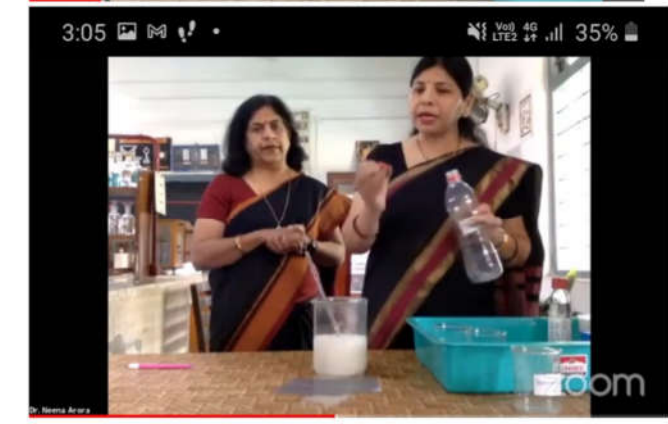
**OMS**

What are the symptoms of coronavirus?

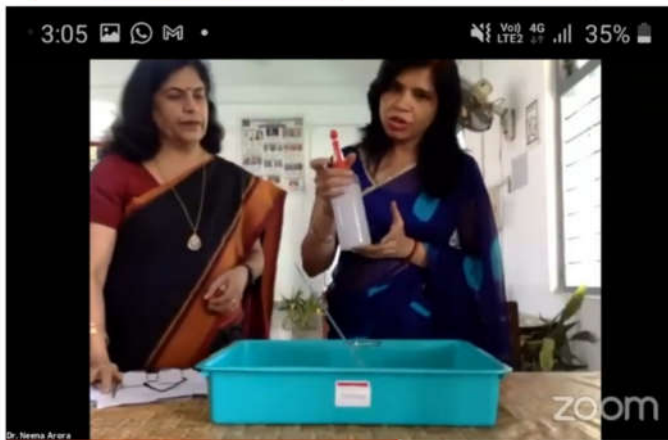
- Sore throat
- Fatigue
- Runny or stuffy nose
- Cough
- Body aches
- Shortness of breath
- Headache
- Chills
- Fatigue
- Gastrointestinal: diarrhea, nausea
- Loss of smell and taste

**SYMPTOMS**

- ACHILLES TENDONITIS
- ALLERGIC RHINITIS
- ASTHMA
- BRONCHITIS
- DIARRHEA
- HEADACHE
- HEPATITIS
- IBS
- IBD
- IRIS
- ITIS
- MEASLES
- MIGRAINE
- MONONUCLEOSIS
- MUSCULOSKELETAL DISORDERS
- NEURALGIA
- OBSTRUCTIVE PULMONARY DISEASE
- OSTEOARTHRITIS
- OSTEOPOROSIS
- PERIPHERAL NEUROPATHY
- PSYCHIATRIC DISORDERS
- RA
- SCURVY
- SINUSITIS
- SLE
- SPINA BONE DISEASE
- STROKE
- TUBERCULOSIS
- ULCERATIVE COLITIS
- WOUND HEALING DISORDERS



Zoom meeting screenshot showing a grid of participants in a video conference. The interface includes a title bar, a grid of video thumbnails, and a sidebar with participant names and status indicators.



Zoom meeting screenshot showing a close-up of a woman speaking. The interface includes a title bar, a grid of video thumbnails, and a sidebar with participant names and status indicators. The title of the meeting is "Attestation and need to rejuvenate our rivers".