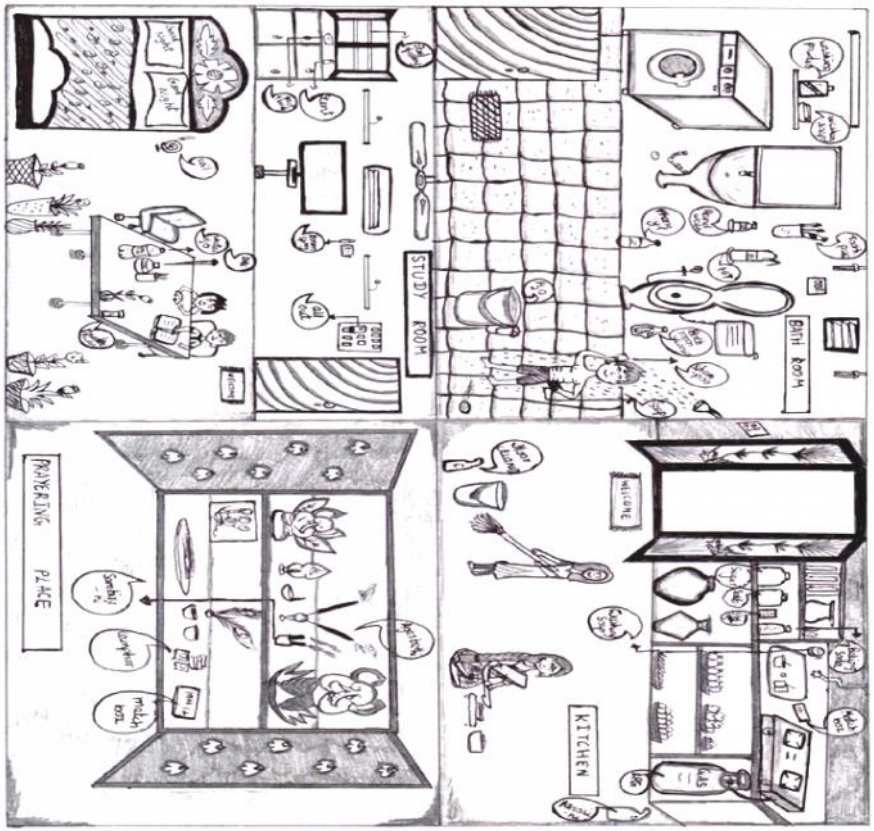
CHEMYSTERY

Art by -R.Soundharya, (II B.Sc.Chemistry)



One who finds the maximum number of chemical compounds present will be selected as the winner. Please send your answers to chemtalk123@gmail.com. The winner of the previous Chemystery puzzle is Ms.S.Anusiya, III B.Sc. Chemistry. The correct answers are 1.Xenon 2.Kaolin 3.Lepton 4.Tear Gas 5.Tritron 6.Lattice 7.Bone 8.Brass 9.Borazole 10.Brine 11.Alcked 12.Azole 13.Talc 14.Phosgene 15.Kernel 16.Bromine

A.P.C Mahalaxmi College for Women,
Thoothukudi.

DEPARTMENT OF CHEMISTRY

CHEMTALK

A Students' Magazine

Edition I, Volume II
04/10/2018

அன்பு அறிவு அறம்

This edition introduces a new DOODLE design for Chemtalk, Designed by P.M.Kavitha of III B.Sc. Chemistry. It also features an interesting pencil art by R. Soundharya of II B.Sc. chemistry, under the Column CHEMYSTERY.

From Editors Desk

Dear Readers,

As our Government has strongly enforced plastic ban, we have also tried to take a step towards environmental protection by publishing a novel method of plastic degradation. To give a new perspective of chemistry to readers, we have introduced chemfiction, i.e. a fictional story on chemistry. We assure that this edition will satisfy the expectation of the readers.

- Editor

Publisher : **Department of Chemistry,**
A.P.C.Mahalaxmi College for Women, Thoothukudi.

Email : chemtalk123@gmail.com

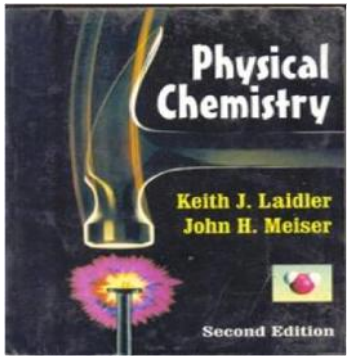
Polonium and Radium. Under her directions, the world's first studies into the treatment of neoplasms were conducted using Radioactive isotopes. She founded the Curie institute in Paris and in Warsaw which remain major centres of Medical research today. She named the first chemical element that she discovered in 1898, Polonium after her native country. She championed the use of portable X-ray machines and the medical vehicles earned the nick name "Little Curies". She traveled to the United States twice in 1921 and in 1929 to raise funds to buy Radium and to establish a Radium research institute located in Warsaw.

EAGLE'S VIEW

-Durai Selvi (Alumnae - PG Batch of 2016-2018)

Keith J.Laidler (1916-2003), born in England, was notable as a pioneer in Chemical kinetics and author of Physical Chemistry of Enzymes. In 1946- 1955, he worked in Catholic University of America. He spend his remainder of his academic career at the University of Ottawa 1955-1981, where he served as Chairman of the Department of Chemistry and Vice Dean of the Faculty of Science. He was the author of 13 books and more than 250 articles.

Physical chemistry - Keith J.laidler provides a brief knowledge about the Chemical kinetics leading to the development of Transition State Theory, which provides the basis for Modern kinetic theory.



The students for which the book is intended are assumed to have a basic knowledge of chemistry, Physics and Calculus. The theoretical part deals with the reactivity and mechanism. They have also included 11 short biographies of scientists. In the second edition, they have emphazised the dimensionality of units of quantities. This edition has 5 appendix. The mathematical relationships provided in appendix C would prove useful as a handy reference.

CHEM CURRENTZ

The Golden Bacteria

-S.Aishwarya (III B.Sc. Chemistry)

A group of scientists have identified a bacterium that turns toxic water soluble gold into microscopic nuggets of the solid precious metal. The finding solves a mystery that for decades has intrigued biochemists which is why the *Delftia acidovorans* germ is frequently found on the surface of tiny gold nuggets.

Nathan Magarvey of Mc Master University in Hamilton Canada and his team grew a colony of this micro organism and conducted tests to determine how it produces the molecule sized gold nuggets outside its cell wall. The group concluded the answer lies in a molecule excreted by the microbe which shields the organism and transforms the poisonous ions into particles. In other words it protects itself by turning its environment to gold.

This finding is the first demonstration that a secreted metabolite can protect against toxic gold and cause gold biomineralization. The process by which the living organism produce minerals were identified.

Frank Reith a micro biologist at the university of Adelaide in Australia whose work on gold processing bacteria was a touchstone for Magarvey's team told nature, the finding opens up the possibility of using a bacterium or metabolite to seed waste drop piles leave them standing for years and see it bigger gold particles form.

Thousand years to 3 months

-B.Parvathi (III B.Sc.Chemistry)

Usually plastic takes thousands of years to decompose but a 16 year old boy, Daniel Burd made it happen in just 3 months.

He figured that some bacteria must make the plastic degrade hence he mixed landfill dirt with yeast and tap water then added ground plastic and let it stew. The plastic indeed decompose quickly than it would in nature.

After experimenting with different temperature and configuration Burd isolated the microbial munchers. One came from bacterial genus Pseudomonas and the other from the genus Sphingomonas.

CHEM FICTION

Childhood days of Swati

- S.Amutha (I B.Sc. Chemistry)

Swati is a scientist now. In her childhood days, she always imagine something, do or try something. Later she was interested in Chemistry. When she bought some products or things, she read the ingredients which was used in the product. Day by day she was very eager and very interested in Chemistry. Oneday, she came to know that, the car battery contains sulphuric acid. Immediately she took a bottle which contains some aluminium foil. Then she took an acid using a dropper and placed it in the bottle. After adding the acid, the bottle was covered by a balloon. And a colourless gas is evolved which is collected by placing a balloon around the mouth of the bottle.The gas collected in the balloon is Hydrogen gas.

This shows the reaction,

Aluminium+Sulphuric acid——>Aluminium sulphate+Hydrogen gas

She found out which reaction was happened here. This was one of the incidents in childhood days of scientist Swati.

Another incident happened in her childhood, when her uncle gave her a chocolate bought from Belgium. Belgium Chocolates cannot withstand high temperature, they melt easily. Swati didn't have a refrigerator at her home. So she thought of an idea. She took a vessel containing water. Then she added a spoonful of glucose. She kept the chocolate pack inside the glucose solution. The science behind this is that addition of glucose to water is an endothermic reaction. During endothermic reaction, heat is absorbed from the surroundings.Thus she protected the chocolates from melting.

To be continued….

Mr. UNKNOWN

Talc- A Silent Killer

-G.Indhumathy (I B.Sc.Chemistry)

We have probably used it, or had it sprinkled on us. It is processed from a soft mineral compound of magnesium silicate, and is called Talcum powder or just Talc. Talcum dusting powder is commonly used to reduce rashes and diaper irritation in babies. But this practice is dangerous. Inhalation of significant amount of powder, causing acute or chronic lung irritation known as talcosis.However this risk is avoidable as cornstarch powder can be used as alternative.

Women have been persuaded by advertisement to dust themselves with talcum powder to allerged genital odors. The first warning of the danger of genital talc came in a 1971 report on the identification of talc particles in ovarian cancer, a finding sharply contested by Dr.G.Y.Hildick Smith Johnson & Johnson's medical director.

The mortality of ovarian cancer in women at 60 years of age and older has escalated sharply, especially in black women who have a higher rate of talc use than other races .Near 16000 women in US die from ovarian cancer by year. By some estimation, one of five women regularly applies talc to her genitals. Food and Drug Administration (FDA) even shows casual concern about the danger of Talc.

RED CARPET

The Curious Curie

-S.Uma Sankari (II B.Sc. Chemistry) & B.Raja lakshmi (II B.Sc. Chemistry)

Marie Sklodonska Curie was born in 7th November 1864, was a Polish Physicist and Chemist, who conducted pioneering research on radioactivity. She was the first women to win a Nobel Prize twice. She was also the first women to become a professor at the University of Paris and in 1995, became the first women to be entombed on her own merits in the Pantheon in Paris.

She was born in Warsaw, Poland, part of Russian Empire. She studied at Warsaw's Clandestine Flying University and began her practical scientific training in Warsaw. She shared the 1903 Noble prize in physics with her husband Pierre curie and with Physicist Henry Becquerel. She won the 1911 Nobel Prize in Chemistry.

Her achivements included the development of the theory of Radioactivity, techniques for isolating radioactive isotopes and the discovery of two elements

CHEMTALK 2018

Departmental Activities

Inauguration of Chemistry Association:

The Chemistry association was inagurated on 18.07.2018. Ms.P.J.Divya Devi of III B.Sc.,Chemistry was elected as the president and Ms. S.Santhanalakshmi of II B.Sc.,Chemistry was elected as the secretary.

Guest lecture:

A guest lecture was organised on 29.08.2018, Dr.S.Megala Sathya Sheeli , Assistant Professor of Chemistry, Sarah Tucker College, Tirunelveli, delivered a talk on "OPTICAL ISOMERISM".

Workshop:

A State level workshop was conducted on 18.09.2018, Dr.S.Murugan, Former HOD, Department of Chemistry , S.T. Hindu College, Nagercoil, delivered a lecture Workshop on "SAVE CHEMICALS SAVE ENVIRONMENT".

Industrial visit:

Final year UG and PG students of Chemistry went on an Industrial visit to DCW, Arumuganeri, Sahupuram on 20.09.2018.

Alumni meet:

The alumni meet of our department was organised on 15.08.2018. Dr. Sheeba Thavamani, Assistant Professor, of Chemistry of V.O.Chidambaram College, Thoothukudi presided over the function and shared her experiences in this College.

Acheivements:

Dr.D.Shanmuga Priya, Assistant Professor of Chemistry received approval for guideship on 02.04.18. P.Yokeswari Nithya, Assistant Professor of Chemistry was awarded Doctorate in Chemistry on 15.12.2017. She has also written a chapter in the book "Ethnomedicinal Plants - A Biodiversity Treasure" (*ISBN – 978-93-5124-919-1*). Dr.J.Clara Jeyageetha, Assistant Professor of Chemistry took incharge of criterion II head in this semester. Ms.T.Vidhya, Assistant Professor of Chemistry, acted as a Resource person in UGC sponsored National level seminar on 24.03.2018 at Pope's college in the topic "Green Chemistry –An outlook". G.Mahalaxmi of I B.Sc.Chemistry participated in Cross country race and secured second place and she was selected as **university level player**.