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VIPNET NEWS

A monthly newsletter of Vigyan Prasar Network of Science Clubs - VIPNET

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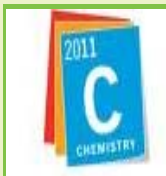


2011 International Year of Chemistery

Inside

विशेष लेख

Marie Curie ...*In science we must be interested in things, not in persons.*

International Year of Chemistry 2011

The United Nations has designated the year 2011 as the International Year of Chemistery (IYC-2011) with UNESCO as the leading UN agency together with International Union of Pure and Applied Chemistery. The focal theme of the IYC-2011 is "Chemistry-Our Life, Our Future".

The idea behind designating the year 2011 as the International Year of Chemistry is to 'celebrate the art and science of chemistry and its pivotal contributions to our knowledge, to environmental protection, to improvement of health and to economic development. ' Chemistry has been rightly called the central science, which has linked the familiar with the fundamental.

Chemistry is the scientific study of the composition and properties of matter. Thus the understanding of the material nature of our world is grounded in our knowledge of chemistry. All living processes are controlled by chemical rections.

Through different activities at different levels-local, regional, national, and international- IYC-2011 will try to achieve the following :-

i. Improvement of the understanding and appreciation of chemistry by the public.

ii. Enhancement in international cooperation by serving as a focal point of information source for activities by national chemical socities, educational institutions, industry, governmental and non-governmental organisations.

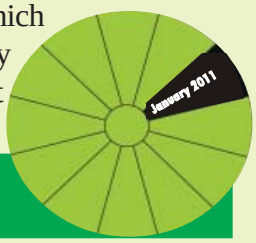
iii. Promotion of the role of chemistry in contributing to solutions to global challenges.

iv.Building capacity by engaging young people with scientific disciplines, especially the scientific method of analysis developed by hypothesis, experiment, analysis and conclusions.

v. Generation of enthusiasm for the creative future of chemistry.

The year 2011 marks the one hundredth anniversary of the Nobel Prize in Chemistry awarded to Marie Curie in 1911. This was Marie Curie's second Nob le Prize; she was earlier awarded the Noble Prize in Physics in 1903. IYC-2011 will provide an opportunity to focus on the achievements of women scientists, as Curie's achievements continue to inspire students, particularly women, to pursue a career in science.

The Year 2011 also marks the one-hundredth anniversary of the establishment of the International Association of Chemical Societies in Paris (which later became the International Union of Pure and Applied Chemistry IUPAC). So the IYC-2011 will also help highlight the important of international cooperation in the development of chemistry.



अंतरराष्ट्रीय रसायन विज्ञान वर्ष-2011
रसायन विज्ञान - हमारा जीवन हमारा भविष्य

Vigyan Prasar will work in collaboration with other organisations including schools, colleges, government agencies and NGOs for creating awareness about the importance of chemistry in meeting our present needs and ensuring well-being of future generations. It will try to highlight the major achievements of chemistry in recent years both in India and aroad. Through various activities Vigyan Prasar will attempt to draw the attention of students to chemistry. It will try to help the public to appreciate the importance of chemistry int their daily lives.

Vigyan Prasar has planned to organise nation-wide activities during IYC-2011

It may be noted that Vigyan prasar organised nation-wide activities during the International Year of Physics-2005, International year of Planed Earth 2008, and International Year of Astronomy 2009. VP has also planned a nubmer of acativities during the International Year of Biodiversity 2010. The proposed activities for the IYC-2011 are the follwing :

1. Innovative experiments in chemistry.
2. Audio programme.
3. Television programme.
4. Interactive activity kit.
5. Training of resource persons for conducting programmes in schools.
6. Wall planner.
7. Fun with chemistry.
8. Preparation of specific materials for agricultural workers.
9. Preparation of specific materials for women self-help groups.
10. Hands-on demonstrations.
11. A set of posters on chemistry and healthcare.
12. Food adulteration kit.
13. Resource materials on kitchen.
14. A CD on power-point presentations on different aspects of chemistry.
15. Innovative multi-media presentations on chemistry.
16. Specific activities/programmes for popularising the life and work of Acharya P.C. Ray.
17. Books: Pioneers of Modern Chemistry; The World of Chemical Elements; Chemistry and Human Life; Chemistry in the Kitchen; What is Chemistry'; A Quiz Book in Chemistry; Success Strories in Indian Chemistry; Careers in Chemistry; The Story of Oxgen; Fingerprints of Elements; and books linking major isses like climate change with chemistry and highlighting the contributions made by the Noble Laquretes 1901-2009. Reprints of the follwing two books The Story of Chemistry and Topsy-turvy in Chemistry will be brought out. Some new titles are in the process of being identified.
18. Posters-A set of posters depicting the growth of Chemistry and how it has influenced human life.
19. Popular lectures in different parts of the country by well-known chemists and science communicators.
20. Green chemistry.
21. Workshops/training programmes.
22. Articles in newspapers/magzines.
23. Enterpreneurial acativities like soap making.
24. Chemistry behind "Miracles."
25. Desk Calendar.

National Camp for VIPNET Clubs as part of International Year of Chemistry - 2011

As you know, this year is being celebrated as International Year of Chemistry with the basic objective of appreciating chemistry in daily life. Vigyan Prasar has already planned and finalised a number of programmes and activities for this year. All the activities have been planned in such a way to involve all VIPNET Clubs in taking the message of International Year of Chemistry to more and more people through action oriented programmes and activities. We are proposing some specific activities for our clubs, those needs to be taken up in campaign mode during the month of August to September 2011. All the activities has been designed in such a way to take the message to the people as "how chemistry is part and parcel of our daily life." As given on page 2, all the material, software and necessary information will also be made available all interested science clubs on demand. Information will also be available on the website of VP with downloading features. Based on the reports of the projects and activities undertaken by Clubs, as done during the International year of Astronomy 2009 and International Year of Biodiversity 2010, selection of 200 best projects will be made by VP. Two members of selected projects along with the coordinator of the club will be invited to participate in the National Camp which will be organized in the month of October-November 201. The dates and venue of the camp will be announced shortly. The suggested activities are:-

(i) Demonstration and explanation of science behind so-called miracles specially based on knowledge of Chemistry.

(ii) Detection of food adulterations in food stuffs.

(iii) Testing the quality of water and preparing a status report of your locality and how with the help of chemistry water can be purified.

(iv) Testing of various soil samples from your area and their suitability for different crops.

The basic idea of these activities is to use knowledge of chemistry to test the quality of food, water and soil and what action(s) is (are) need(s) to be initiated as corrective measures.

However, each club is free to decide and designed their own activities in addition to above, provided the activity is based upon the knowledge of chemistry.

Mandatory Activities for each club

- **Demonstration and explanation of science behind so-called miracles specially where the explanation is based on basic knowledge of Chemistry.**
- **Detection of food adulteration in food stuffs.**

Any one of them

- **Testing of water quality in a campaign mode. Or**
- **Testing of soil and its suitability for different crops in a campaign mode.**

Note:- The demonstrations of tricks specially based on chemicals is to be given in community to remove the superstitions followed by discussions, debates as how the knowledge of chemistry is used by the so-called god men to cheat the innocent people.

All the activities need to be done by the clubs in the campaign mode for a period of two months (August-September 2011) in the field and report is to be submitted by the end of October 31, 2011 to:

International Year of Chemistry Desk, Vigyan Prasar, A-50, Institutional Area, NOIDA-201 309

It is mandatory for all interested clubs to register with Vigyan Prasar by selecting specific activities which they are intending to undertake. From the above mentioned activities, it is mandatory to undertake two activities by each club i.e. "Demonstration of science behind so-called miracles" and "Detection of food adulteration" Out of remainings, clubs may take anyone, i.e. "testing of water" or "testing of soil".

For the guidance of our clubs, we will be publishing a series of resource articles and other related information in our VIPNET News in all forthcoming issues.

The life of Marie Curie contains prodigies in such number that one would like to tell her story like a legend. She was a woman; she belonged to an oppressed nation; she was poor; she was beautiful. A powerful vocation summoned her from her motherland, Poland, to study in Paris, where she lived through years of poverty and solitude. There she met a man whose genius was akin to hers. She married him; their happiness was unique. By the most desperate and arid effort they discovered a magic element, radium. This discovery not only gave birth to a new science and a new philosophy: it provided mankind with the means of treating a dreadful disease.

Eve Curie in Madame Curie by her Daughter (translated by Vincent Sheean)

Marie Curie (1867-1934) : The first Woman Noble Laureate

Marie Curie (her original name was Marya Sklodowska) was born on November 07, 1867 in Warsaw, the capital city of Poland. She was the fifth and the last child of her parents Bronislawa and Vladislav Sklodowska. At the time of her birth, Poland had not been an independent country. It had been divided up among Austria, Prussia and Russia. Warsaw was in the part of Poland that was under the control of Russia. Czar Alexander II, the then Ruler of Russia.

After the birth of Marie, her family's fortune deteriorated. Her birth led her mother to resign her position as a head of a school, where the family had resided until then. They moved to a boys' high school, where her father taught mathematics and physics. However, the Russian supervisor in charge of the school fired him for his pro-Polish sentiments. And subsequently he was forced into a series of progressively lower academic posts. Her mother after fighting for five years against tuberculosis died at the age of 42 in May 1878. At the time Marie Curie was 10 years old. In 1873, Sklodowski lost his job. He was replaced by a Russian teacher. At about the same time he also lost most of his savings through an unwise investment in a scheme promoted by a brother-in-law. Sklodowksi never forgave himself for losing the family savings in a bad investment. However, his children honoured him for nurturing them emotionally and intellectually. He read classics of literature to his children. He also exposed to the scientific apparatus he had once used teaching physics in school but now he had kept them in home as Russian authorities removed laboratory instruction from the Polish curriculum. Marie did very well in her school studies. She was awarded a Gold medal at her high school graduation in 1883. While she was very good student in school but in her early days but she did not show any startling characteristic to indicate that one day she would become the most famous woman scientist in the world. But she had a brilliant aptitude for study and a great thirst for knowledge. However, as being a woman, as mentioned earlier, she had no hope for advanced study in Poland of those days. So she along with her sister Bronya started attending the Floating University. The name `Floating University' derived from the fact it was an illegal night school and its classes met in changing locations. This was to evade the watchful eyes of the Russian authorities.

It was obvious that the education given by the Floating University could not be matched the education provided by any major European university which admitted women. However, Marie became familiar with progressive thought and also with new developments in the sciences. Both Marie and her sister nurtured a hope of going to Paris and study at the Sorbonne University. However, their father was not in a position to send them to Paris for higher studies. Bronya was earning some money by giving private tuition. Marie also tried to earn some money by private tuition but without much success. Both the sisters realized that individually they would not able to earn enough money to enable them to go to Paris. So they decided that one of them will go first by pulling their resources together. But then they had to decide who would go first. Marie asked her sister to go first.

To earn money Marie decided to work as governess. Her first stint as a governess was quite unpleasant. In 1886, again she went to take up the job as a governess in a village which was 100 kilometres away from Warsaw. Her salary was 500 rubles a year. It seemed Marie liked the job here, as evident from her letter to Henrietta written on February 03, 1886. She established friendly relation with the family to such an extent that they supported Marie when she decided to teach some of the peasant children to read and write in Polish. It may be noted that such an activity was strictly prohibited in Poland. While working here she fell in love with the eldest son of the family, a mathematics student at the Warsaw University and they decided to marry. But her employers, the parents of the boy, absolutely refused to allow it. Though she felt humiliated at the turn of events she stayed in her post till her contract was over. This is because she knew her responsibility. She had to send money to her sister in Paris.

Marie Qurie in Lab

In mid- 1889 Marie came back to Warsaw. She had got an appointment in the house of some rich industrialist. After finishing this assignment she started living with her father. She again joined the Floating University. During this time she had also an opportunity for entering a laboratory for the first time. It was in an institute called "The Museum of Industry and Agriculture" which was teaching science to young Poles. At the time it was directed by her cousin Joseph Boguski. The name of the institute was to mislead the Russian authorities. A museum would not arouse suspicion. It was here that she developed the taste for experimental research.

Finally the moment, for which she was waiting, arrived. In November 1891, she set off for Paris. She had just turned 24. She travelled in the cheapest class on the three -day journey by rail. She enrolled at the Sarbonne University. She had to struggle hard in her studies. After finishing school she had been away from her studies for six years. She was mostly self- taught and so there were inheritable gaps in her knowledge. Moreover, though she had good knowledge of French but it was not the same technical French spoken by her fellow students and professors at the Sorbonne University.

At first she lived in the home of her sister, Bronya, who married another Polish patriot, Casimir Dluski, whom she had met in Medical school. The Dluskis' home, however, was an hour's journey by horse-drawn bus from the university. So Marie had to waste two hours a day of valuable working time. Moreover, the Dluski apartment was a meeting place for Poles, full of distraction from work. The young doctor was frequently called out to his patients in the middle of the night which meant disturbance of sleep for others. In the absence of visitors Casimir played the piano which was also a source of distraction for Marie from her studies. So within few months Marie moved to the Latin Quarter, the artists' and students' neighbourhood, close to the university here also, she had to struggle a lot. There was no comfort for her.

But Marie was obsessed by her dreams. She was harassed by poverty. But she was proud of living alone and independently in a foreign country. She wanted to achieve something and she had so much confidence in herself that she knew that she would achieve the target one day. In a letter written during this period to her brother, Marie wrote:

"It is difficult for me to tell about my life in detail; it is so monotonous and, in fact, so uninteresting. Nevertheless I have no feeling of uniformity and I regret only one thing, which is that the days are so short and that they pass so quickly. One never notices what has been done; one can only see what remains to be done, and if one didn't like the work it would be discouraging."

Irrespective of tremendous hardships Marie not only completed in 1893 her master degree in physical science but stood first. For her spectacular success she was awarded an Alexandrovitch Scholarship, worth 600 rubles, when she came to Warsaw for the summer. The scholarship was meant for an outstanding Polish student wishing to work abroad. The scholarship enabled her to return Paris and take the master degree examination in mathematics in 1894 after one more year of study. This time she stood second. It may be noted that Marie after getting her first paid employment returned her scholarship money 600 rubles to the Alexandrovitch Foundation so that they could use it to give another young student the same opportunity she had enjoyed.

At Sorbonne Marie had the opportunity to hear some

of the very well-known physicists and mathematicians like Marcel Brillouin, Paul Painleve, Gabriel Lippmann and Paul Appell.

Before completing her mathematics degree Marie was commissioned by the Society for the Encouragement of National Industry to do a study, relating magnetic properties of different steels to their chemical composition. For this work she needed a laboratory where she could do the work. One of her acquaintances, a Polish physicist, M. Kovalski, Professor of Physics in the University of Fribourg, who was visiting Paris at that time suggested that Pierre Curie might be able to assist her. Pierre, who had done pioneering research on magnetism, was Laboratory Chief at the Municipal School of Industrial Physics and Chemistry in Paris. So Marie met Pierre, a meeting that would change not only their individual lives but also the course of science. With Pierre's assistance Marie could find rudimentary lab space at the Municipal School.

When Marie met Pierre, he was 35 years, eight years older then Marie. Though Pierre was an established physicist, he was an outsider in the French scientific community. He was a dreamer, an idealist, whose sole aim in life was to devote his entire life in the pursuit of science. He was totally indifferent to recognition. The Municipal school of Industrial Physics, which he was heading, trained engineers. His research work concerned with crystals and the magnetic properties of bodies at different temperatures. With his brother he had discovered piezoelectricity, which means that difference in electrical potential is seen when mechanical stresses are applied on certain crystals, including quartz.

Marie, too was an idealist. And like Pierre she had also an urge to pursue science single-mindedly. Pierre and Marie immediately discovered an intellectual affinity, which was very soon transformed into deeper feelings. Initially Marie had no plans to settle in France. After her success in her mathematics examination Marie returned to Warsaw for a vacation. She was not sure whether she would return to Paris or not.

Pierre wrote her frequently. He argued strongly that by leaving Paris for good she would be abandoning not just him, but a promising career in science.

Marie came back to Paris and in July 1895 and married Pierre. In 1896, Marie passed her teacher's diploma, coming first in her group. Their daughter, Irene, the future Nobel Laureate, was born in September 1897. Pierre persuaded the authorities for allowing Marie to work in the School's laboratory.

In 1897, Marie decided to take a physics doctorate. Her choice of a thesis topic was influenced by two recent discoveries by other scientists. In December 1895 Wilhelm Conrad Roentgen (1845-1923) had discovered a kind of ray that could travel through solid wood or flesh and yield photographs of living people's bones. Roentgen, who became the first Nobel Laureate in physics, dubbed these mysterious rays X-rays, with X standing for unknown.

In 1896, Antonine Henri Becquerel (1852-1908), showed that uranium compounds, even if they were kept in the dark, emitted rays that would fog a photographic plate. This was an accidental discovery. He was trying to find out whether the new radiation discovered by Roentgen could have a connection with fluorescence. The scientific community initially ignored Bacquerel's intriguing finding. Marie decided to make a systematic investigation of the mysterious uranium rays for her doctorate degree. As the topic was quite new she did not have long bibliography of published papers to read. Thus she was able to begin experimental work on them immediately. She had an excellent aid at her disposal, an electrometer for the measurement of weak electrical

Marie Curie was the first to use the term `radioactivity'. Through her discovery of radium, Marie paved the way for nuclear physics and cancer therapy. She was the first woman in Europe to earn a doctorate degree (1902). She was the first woman to win a Nobel Prize. In 1903 the Nobel Prize for physics was jointly awarded to Marie, her husband Pierre Curie (1859-1906) and Henri Becquerel (1852-1902) for the discovery of radioactivity. She was the first woman to be appointed as lecturer and professor at the Sorbonne University in Paris (1906). She was the first person ever to receive two Nobel Prizes. In 1911 she was awarded the second Nobel Prize in chemistry for her discovery and isolation of pure radium and radium components. She was the first mother-Nobel laureate of a daughter Nobel Laureate.

current. This new kind of electrometer was invented by Pierre Curie and his brother Jacques. It was based on piezoelectric effect. This device was very useful as she decided to determine the intensity of the radiation of uranium compounds by measuring the conductivity of the air exposed to the action of the rays.

While working on this topic she discovered that thorium gives off the same rays as uranium. Thus she proved that uranium was not the only radioactive element. She also demonstrated that the strength of the radiation did not depend on the compound that was being studied. It depended only on the amount of uranium or thorium present in the sample. This was a very surprising result. Because as we know different compounds of the same element have very different chemical and physical properties. But in case radiation given off by uranium and thorium it mattered only how much uranium or thorium a compound contained. Based on her findings Marie concluded that the ability to radiate did not depend on the arrangement of the atoms in the molecules but it must be linked to the interior of the uranium itself and not to its interaction with something else. It had to be an atomic property. And from a conceptual point of view it is her most important contribution to the development of physics. That radioactivity was an atomic phenomenon was demonstrated by Rutherford and his pupils. After these discoveries Marie decided to study the natural ores that contain thorium and uranium. She found that two uranium minerals, pitchblende and chalcocite, were more active than uranium itself so she hypothesized that a new element that was considerably more active than uranium was present in small amounts in these ores.

Marie Qurie performing experiement

Pierre, after being fascinated with new vistas that were opening up from Marie's research, gave up his own research into crystals and symmetry in nature and joined Marie in her project. They found that the fractions containing bismuth or barium showed strongest activity. By the end of June 1898 they found a substance which was 300 times more strongly active than uranium. In this research paper announcing their findings they wrote : "We thus believe that the substances that we have extracted from pitchblende contain a metal never known before, akin to bismuth in its analytic properties. If the existence of this new metal is confirmed, we suggest that it should be called polonium after the name of the country of origin of one of us."

The term `radioactivity' was first used in this paper read on December 26, 1898. They announced the existence of an additional very active substance that behaved chemically almost like pure barium. They suggested the name `radium' for the new element.

In their joint work Pierre observed the properties of the radiation while Marie, for her part, purified the radioactive elements. It turned out that in order to extract even tiny traces of radium one would require to process tonnes of the ore, pitchblende. Moreover Curies would require to buy this costly raw material. Pitchblende was expensive because uranium salts produced from it was used in industry to make glazes. But luckily for Curies the residue of the ore after the uranium had been extracted was almost worthless and could be brought cheaply. Being persuaded by Professor Edward Suess (1831-1914) and the Academy of Science of Vienna, the Austrian government which was the proprietor of the state factory, presented a ton of residue to the Curies. And what is more if they require more they could obtain it at the mine on the best terms. However, they had to pay for its transportation from Austria to Paris. They processed it in a dilapidated shed. While describing about the shed Eve Curie wrote : "The Faculty of Medicine had formerly used the place as a dissecting room, but for a long time now it had not even been considered fit for a mortuary. There was no floor and an uncertain layer of bitumen covered the earth. It was furnished with some worn kitchen tables, a blackboard which had landed there for no known reason, and an old cast iron stove with a rusty pipe.

After struggling under the most adverse circumstances, Marie finally isolated almost pure radium chloride. She had just obtained one tenth of a gram. She took it to the French chemist Eugene Demarcay (1852-1904), who had first identified the new elements spectroscopically. He now had enough to determine its

atomic weight, which he calculated as 225.93. Marie defended her doctoral thesis on June 15, 1903. Among the three members of the Examination committee were two future Nobel Laureates - Gabriel Lippman (1845-1921) and Ferdinand Frederic Henri Moissan (1852-1907). The Committee was of the opinion that the findings represented the greatest scientific contribution ever made in a doctoral thesis. The same year Marie and Pierre were awarded half the Nobel Prize in Physics "in recognition of the extraordinary services they have rendered by their joint researches on the radiation phenomena discovered by Professor Henri Becquerel." The other half went to Becquerel for his discovery of spontaneous radioactivity. The announcement of 1903 Nobel Prize for physics aroused tremendous curiosity of the press and the public. Earlier only the Prizes for Literature and the Peace used to be widely covered by the press. The Prize in science were not given publicity because they were considered all too esoteric to be able to interest the general public. After getting the Nobel Prize Marie wrote : "We have been given half of the Nobel Prize. I do not know exactly what that represents : I believe it is about seventy thousand francs for us, it is a huge sum. I don't know when we shall get the money, perhaps only when we go to Stockholm. We are obliged to lecture there during the six months following December 10th.

Marie Qurie and his husband Pierre Qurie

We did not go the ceremonial meeting because it was so complicated to arrange. I did not feel strong enough to undertake such a long journey (forty-eight hours without stopping, and more if one stops along the way) in such an inclement season, in a cold country and without being able to stay there more than three or four days : We could not, without great difficulty, interrupt our courses for a long period.

We are inundated with letters and with visits from photographers and journalists. One would like to dig into the ground somewhere to find a little peace. We have received a proposal from America to go there and give a series of lectures on our work. They ask us how much we want. Whatever the sums may, we intend to refuse."

On April 19, 1906 Pierre while hurrying to cross a road he was run over by a horse-drawn wagon with a load of military uniforms, weighing some six tons. He was killed instantly. The top of his skull was crushed by the left rear wheel of the vehicle. After Pierre's death, Marie was appointed as a professor at the Sorbonne University. She was the first woman to be appointed at Sarbonne. Marie continued to produce several decigrams of radium chloride. And finally with Andre Debierne, she isolated radium in metallic form. In 1911 she was awarded the Nobel Prize in chemistry `in recognition of her services to the advancement of chemistry by the discovery of the elements radium and polonium. The discovery and isolation of radium is regarded as the greatest event in chemistry since the discovery of oxygen. The fact that an element could be transmuted into another element, revolutionised chemistry and signified a new epoch. Some people have questioned the decision of the Nobel Committee awarding Marie a second Nobel Prize in chemistry. According to them, the second award was also given for the same discovery, for which Marie and her husband Pierre was awarded the Nobel Prize in Physics in 1903. In her Nobel lecture delivered on December 11 in Stockholm, she declared that she also regarded this prize as a tribute to Pierre Curie.

In 1914 Marie helped found the Radium Institute. Throughout the first World War Marie devoted herself to the development of the use of X-ray radiography. She trained army's radiologist nurses at the Radium Institute, at what is now know as the Curie Institute. She equipped more than 20 vans that acted as mobile field hospitals and about 200 fixed installations with X-ray apparatus. She obtained funds from charitable institutions such as the Red Cross and adopted X-ray equipment to make portable radiology units. She persuaded rich women to donate cars to carry those instruments. Marie

Contd.....Page.9

Vigyan Prasar and All India Radio

Present

Science Serial on Biodiversity of India in 19 Indian languages

encluding English broadcast from 117 station

'Colours of Life' (In English)

Jeevan Ke Rang (हिंदी में)

From 13 February, 2011 (Every Sunday 9.00-9.30 am) for Hindi and 9.30-10-30 pm for English.

You have change to win exciting prizes send correct answers to question at the end of each episodes.

For other languages tune in your area radio

Contd. From Page No.8...

travelled with one of the cars herself operating the X-ray equipment at field hospitals to locate shell fragments in the bodies of wounded soldiers. Her elder daughter Irene helped her in her effort. Together they trained 150 other radiographers. The total number of men examined by these installation exceeded a million. After the end of the war, Marie undertook a campaign to raise funds for the Radium Institute. She was persuaded by Marie Maloney, an American journalist, to tour the United States for publicising the project in 1921. Meloney herself campaigned to raise funds from American women to purchase a gram of radium for Marie. The ten United States' President Warren G. Harding presented her the radium thus purchased.

On July 4, 1934 Marie died of leukemia. She was 67. The leukemia was caused by her long exposure to hard radiation.

In April 1995 Marie and Pierre Curie's remains were enshrined under the famous dome of the pantheon in Paris alongside the author Victor Hugo, the politican Jean Jaures and the Resistance fighter Jean Moulin. The Pantheon is the memorial to the nation's great men". Here some of the France's most distinguished personalities lay buried. Marie was the first woman to be honoured on her own merit. It may be noted here though Marie and Pierre worked under the most adverse circumstances they refused to consider taking a patent as being incompatible with their view of the role of researchers. If they had taken a patent it would have facilitated their research and spared their health. We would like to end this article by quoting what Curie had to say for making a better world : "You cannot hope to build a better world without improving the individuals. To that end, each of us must work for an own improvement and, at the same time, share a general responsibility for all humanity, our particular duty being to aid those to whom we think we can be most useful."

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If you want to know more about Vigyan Prasar, its publications & software, besides the next moves of VIPNET Science Clubs, please write to us at the address given below:-

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Audio-Viedo Programme of Vigyan Prasar

Vigyan Darpan and Science This week

Watch 'Indian Science This Week', a weekly current affairs/ news based video magazine on Lok Sabha TV. It is a first weekly current affairs/ news based video programme in India which is being telecast in Hindi and English languages. "Vigyan Darpan" (In Hindi) is being telecasted from 24 February, 2011 on every Thursday at 9.30-10.00 PM. "Science this week" (In English) is being telecasted from 25 February on every Friday at 9.30-10.00 PM.

Science Watch

"Science Watch" a video programme based on the new research in the field of science and technology is being telecasted from 7th December 2010 on every Tuesday at 9.30-10.00 PM on DD National. In this programme one can see the ongoing revolutionary developments in the field of biotechnology, nanotechnology, space science, astronomy, disaster management, life sciences, chemistry and other important area of science like Agriculture and Health.

AISA HI HOTA HAI

Weekly Video serial "AISA HI HOTA HAI" is being telecast from 02 January 2011 on Lok Sabha TV at 9.30-10.00 hrs. Each episode of the programme is of a 22 minutes duration and devoted to a specific topic, like surface tension, magnetism, friction, buoyancy and so on. The programme is presented by two chatty and inquisitive kids as middle school students, Deepika and Shivam, interacting with a lively young and skillful lady teacher. The teacher, always asks the kids- 'Kyon aur Kaise', (How and Why) and leads them to conclusions through discovery approach.

("AISA HI HOTA HAI" Telecast Timing)

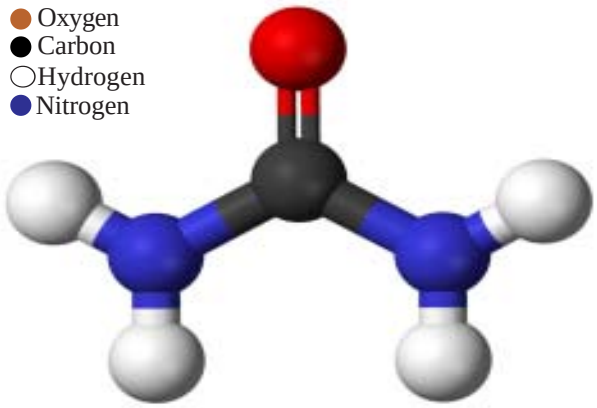
Every Sunday: 9.30-10.00 hrs. Repeat telecast : Monday 13.00-13.30 hrs and Wednesday 17.30- 18.00 hrs.

For more detail please visit our website www.vigyanprasar.gov.in

चित्र पहेली- 58 / Photo Quiz - 58

This year the photo quiz will be based on chemistry as part of **IYC 2011**

Oxygen
Carbon
Hydrogen
Nitrogen



- चित्र में दिये गए एक अणु की संरचना के मॉडल को पहचानिए? यह पहला ऐसा कार्बनिक अणु है जिसका निर्माण अकार्बनिक तत्वों से किया गया था।
- Identify the Structural model of a Molecule given in the picture ? This is the first organic molecule synthesized from inorganic salts.

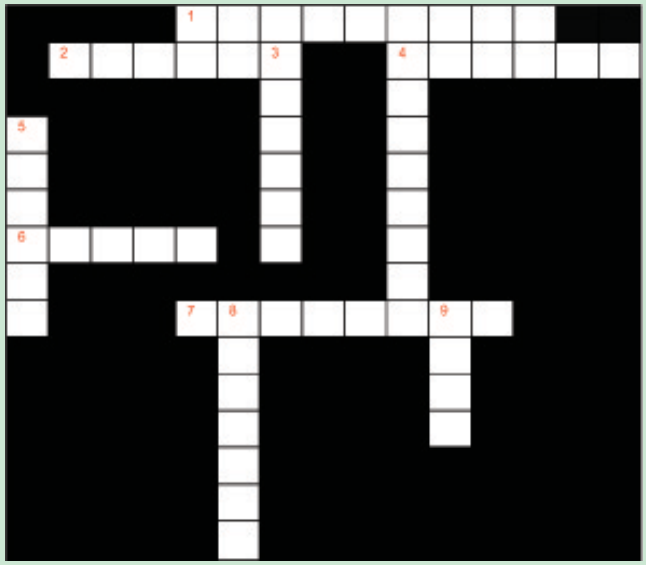
उत्तर प्राप्त करने की अंतिम तिथिः 30 अप्रैल 2011
ड्रॉ द्वारा चयनित विजेताओं को पुरस्कार स्वरूप विज्ञान प्रसार के प्रकाशन भेजे जाएँगे। अपने जवाब इस पते पर भेजें या मेल करें :-
विपनेट चित्र पहेली - 58, विज्ञान प्रसार, ए-50, सेक्टर 62, नोएडा
VIPNET Photo Quiz , 58, VIGYAN, PRASAR, A-50, Sec. 62, Noida E-mail : vipnet@vigyanprasar.gov.in

नोट : - चित्र पहेली-54 का परिणाम आगामी अंक में देखें।

Identify The Metals Puzzle 12

- Last date of receiving correct entries: 30 April, 2011.
- Winners will get a activity kit/ books as a prize. Please send your entries to the address mention below or by E-mail:- vipnet@vigyanprasar.gov.in

Metal Puzzle-12, VIPNET News, Vigyan Prasar,



Left to right

1. A metal with low density and high melting point, an ideal aerospace material
2. The gas important for living world
4. Lightest noble /inactive gas
6. A chemical element with symbol **B**
7. A yellow or brown gaseous halogen with symbol F

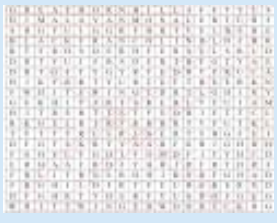
Up to down

3. A gas that occupies 78.08% volume of air
4. The lightest chemical element
5. A non-metal with atomic no 6
8. The lightest metal
9. The second lightest inactive gas

❑ **R. K. Yadav**
rky@vigyanprasar.gov.in

The puzzle has been Designed as part of
International Year of Chemistry-2011

State Bird of India Puzzle- 8



Name of the winners:

इस बार हमें सही उत्तर प्राप्त नहीं हुए। आगामी अंक हेतु आप हमें उत्तर ई-मेल भी कर सकते है। E-mail: vipnet@vigyanprasar.gov.in

Club speak

कृषि विज्ञान केन्द्र का भ्रमण

विज्ञान क्लब राजकीय उच्चतर माध्यमिक विद्यालय, निम्बाणियों की ढ़ाणी, बाड़मेर के छात्र-छात्राओं ने कृषि विज्ञान केन्द्र का भ्रमण कर कृषि संबंधी वैज्ञानिक तकनीकों की जानकारी प्राप्त की।

क्षेत्रीय कार्यालय जोधपुर द्वारा आयोजित इस कार्यक्रम में छात्रों को मिट्टी एवं पानी की जांच, मिट्टी के सैम्पल लेने की तरीका, शून्य ऊर्जा, शीत कक्ष, बूंद-बूंद सिंचाई, औषधिय पादप, संकरण आदि से सम्बंधित कृषि विज्ञान संबंधी जानकारी से अवगत कराया गया।

बाल वैज्ञानिकों की खोज

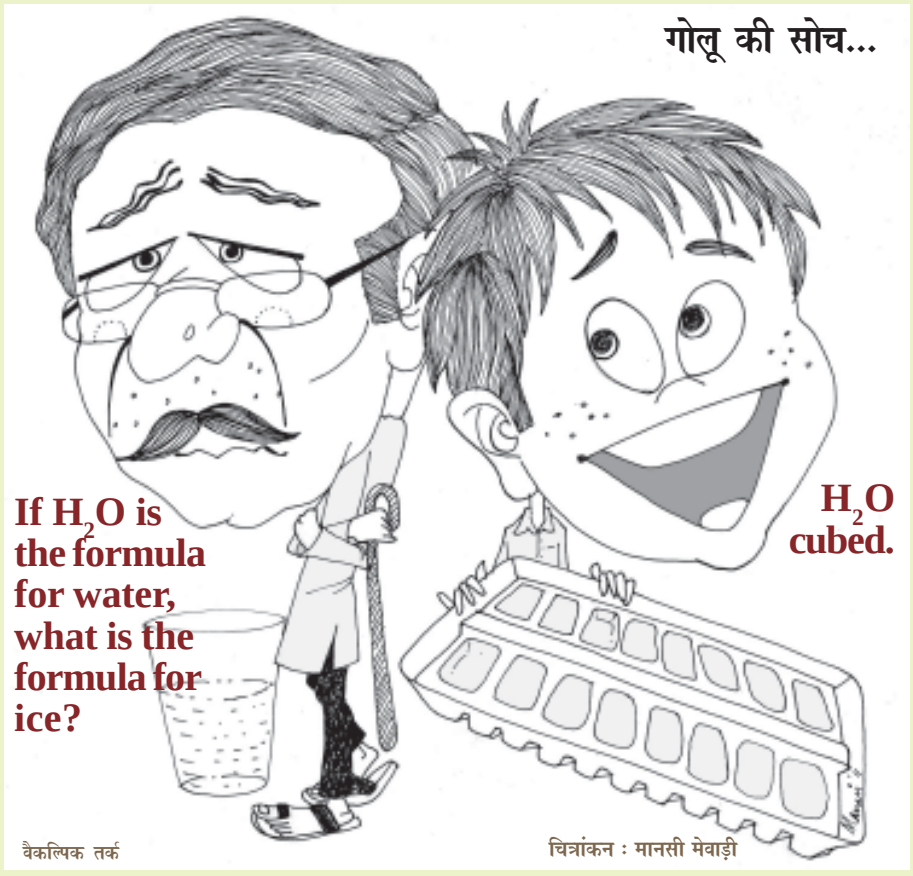
प्रकाश विज्ञान क्लब, गवसरा सहनी, मुज्जफरपुर के सदस्यों की एक आम बैठक हुई। बैठक में बाल वैज्ञानिकों की संख्या बढ़ाना एवं छात्र-छात्राओं को वैज्ञानिक गतिविधियों से अवगत कराने पर विचार-विमर्श किया। इस विषय पर सर्वसम्मति से निर्णय लिया गया। प्रकृति में विलुप्त हो रहे जीव-जन्तुओं की विलुप्ति और मौसम के बदलते मिज़ाज पर भी बैठक में चिन्ता प्रकट की गयी।

विज्ञान प्रश्नोत्तरी

फ्यूचर साइंस क्लब, कजगांव, जौनपुर द्वारा एक विज्ञान सभा का आयोजन किया गया। इस अवसर पर विज्ञान सभा में जलवायु परिवर्तन पर चर्चा के साथ ही विज्ञान प्रश्नोत्तरी कार्यक्रम का भी आयोजन किया गया। इस विषय पर एक भाषण प्रतियोगिता का भी आयोजन किया गया जिसका विषय 'जलवायु परिवर्तन - कारण एवं निवारण' रखा गया। इस कार्यक्रम में क्लब के सदस्यों, छात्र-छात्राओं सहित अन्य ग्रामीण जनों ने भी सहभागिता की, जिससे सभी के बीच विज्ञान से संबंधित कार्यक्रमों के विकास पर ध्यान केंद्रित किया गया।

SAFE SOLAR VIEWER

The member of C.V. Raman Science Club, Yamuna Nagar Haryana viewing the sunstops.



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