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Chemistry in Ireland

VOLUME 1, ISSUE 1

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NEWS

- Science week:
Huge Success.



See page 3

- Science Profiles
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- Science Week
Lectures on
scienceweek.ie
- New book: "Five
Minutes to Mid-
night? Ireland and
Climate Change"
by Dr Kieran
Kieran Hickey
predicts that
Ireland could see
the effects of
climate change
sooner than we
think.

"Imagination is more important than knowledge. For knowledge is limited to all we now know and understand, while imagination embraces the entire world, and all there ever will be to know and understand."

Albert Einstein

Dublin - City of Science 2012!

After much preparation, Dublin has been named The City of Science for 2012. "In 2012 it will be 80 years since Irishman Ernest Walton made the ground-breaking discovery which won him the Nobel Prize for Physics. If Dublin is successful in becoming the European City of Science, it would be a wonderfully fitting way to celebrate the achievements of Ireland's only Nobel winning scientist. Importantly, it would be a key factor in the long term positioning of Dublin as the knowledge city of Europe", said the Lord

Mayor. "The European City of Science" is an EU programme only started in



recent years. It involves a major European city chosen every second year, with the chosen city hosting a year-long programme of science events. There were seven candidates for

the 2010 City of Science, with Turin being selected. Stockholm was the first city in 2004, followed by Munich in 2006. Barcelona hosted this year's festival, from 18 – 22 July, where 5,000 participants took part. Dublin is no exception, with thousands of people invited to attend the international festival of science in June 2012. Minister for Science, Technology & Innovation, Jimmy Devins, has hailed the decision as recognition of the great progress Ireland has made in science in recent years.

Local Industry:



Irishman James Muspratt is the known as the 'Father of the Modern Chemical Industry'.

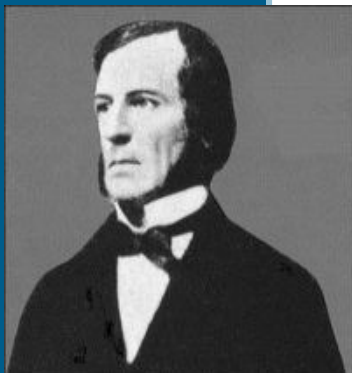
Premier Periclase Ltd. in Drogheda, Ireland, opened in 1980.



Irish Cement Limited
Platin
Drogheda
Co. Louth

Telephone: 041 9876000
Fax: 041 9876400
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www.irishcement.ie

Scientist: George Boole



George Boole
1815-1864

George Boole was an English mathematician and philosopher. Born on November 2, 1815 in England and although he died in 1864, his discoveries are still very relevant today. It is thanks to Boole that we have computers today. As the inventor of Boolean algebra, which is the basis of all modern computer arithmetic, Boole is now looked upon as one of the founders of computer science.

During his early life Boole was more interested in classical studies than maths. However it was his father, who was especially interested in mathematical science and logic, who was originally responsible for his son inter-

est in this field. It wasn't until he started working as a professor of mathematics that his mathematical skills were fully realized. He was appointed as the first professor of mathematics of then Queen's College, Cork in Ireland in 1849. Now called University College Cork, the library, underground lecture theatre complex and the Boole Centre for Research in Informatics are all named in his honour.

In 1855 he married Mary Everest, who went on to write several educational books on her husband's principles. Throughout his life he was known for his modesty. On 8 December 1864, he died of an attack of fever. He is buried in Blackrock, Cork. At the time his dis-

coveries appeared to have no practical uses.

However, about seventy years after Boole's death, Claude Shannon attended a philosophy class which introduced him to Boole's studies. Shannon saw that Boole's work could form the basis of mechanisms and processes, and was therefore highly relevant. Using the properties of electrical switches to do logic is the basic concept that underlies all modern electronic digital computers.

Boolean algebra became the foundation of digital circuit design so Boole had provided the theoretical grounding for the Digital Age.



Mary Field Rosse

“The whole of science is nothing more than a refinement of everyday thinking.”

Albert Einstein

Great Irish Woman: Mary Field Rosse

Mary, nee Field, was born in England, in 1813. She married William Parsons on the in 1836. William Parson's father, the second Earl of Rosse, invited the newly married couple to move to Birr castle. She was much liked by the people of Birr, particularly during the Great Famine when she worked to help those in need. However when it came to family life, Mary's was one of sadness as only four of her eleven children survived into adulthood. June 1842: her husband William began experiments with the daguerreotype photographic process. Although his attempts at astronomical photography were unsuccessful, Mary soon discovered she had a talent for photography. She received a Photographic Society of Ireland's Silver Medal, being the first recipient of such an honour. As I was writing this I was reminded of Marie Curie, who was also a leading woman in her field. Mary Rosse's interest in photography began at a time when stereoscopic photography was becoming popular. At the time photography was more similar to chemistry than art. A darkroom in the castle from the 1850's had lain untouched until 1983. This offers a valuable insight into the photography of the day.





Success of Science Week

Over 100,000 people attended events held across Ireland during Science Week Ireland 2008. Now in its twelfth year, 2008 was certainly the biggest and best yet with over 500 events taking place across the country. As usual, a number of free lectures for the public took place in the Science Gallery, Trinity College Dublin during Science Week Ireland 2008. The lectures are available online at www.scienceweek.ie

Science Week Ireland is organised by Discover Science & Engineering, a programme set up to raise awareness of science. The aim of Science Week Ireland is to promote science, engineering and technology in our everyday lives and to express the importance of these in Ireland's future. Peter Brabazon, programme Director of Discover Science & Engineering, said of the successful week, "Science Week is a fantastic way to introduce young people to the wonders of science but also to demonstrate its relevance to people of all ages".

"Equipped with his five senses, man explores the universe around him and calls the adventure Science."

Edwin Powell Hubble, *The Nature of Science*, 1954

Molecule of the Month

OCTOBER

Dopamine

The neurotransmitter responsible for feelings of pleasure and well-being

NOVEMBER

2-Methylundecanal

The smell of Chanel No.5 perfume.

DECEMBER

Taurine

The stimulant in the 'energy drink' *Red Bull* - but does it give you wings?

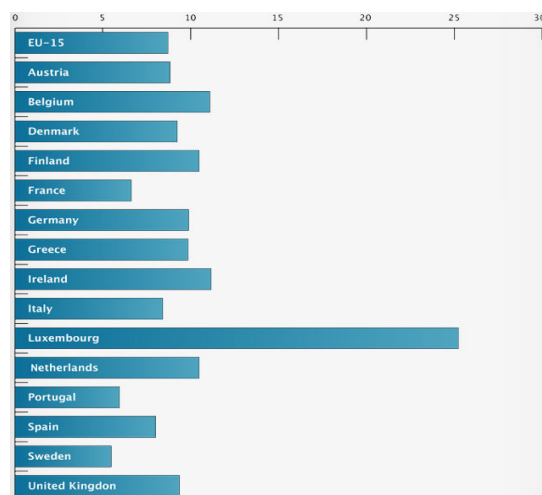
"In science the credit goes to the man who convinces the world, not to the man to whom the idea first occurs."

Francis Darwin

The Science Ambassadors

The Science Ambassador Programme is aimed at young people considering a career in Science, Engineering and Technology. The Science Ambassadors are a group of people, from the newly qualified to the well established, who work in science, love their work and would like to help others learn about their areas of science. For more information on some of the Ambassadors and their careers check out their profiles on the science.ie career pages.

This is an excellent programme that is beneficial to the Ambassador and to the young person. Being a Science Ambassador allows you have the opportunity to provide an insight into your reasons for choosing a career in your science area to someone that could benefit from hearing about your experiences, also to know that you are helping to inform and foster the next generation of Irish scientists is very rewarding.



Graph shows Ireland's emissions compared to those of other EU countries.

<http://www.change.ie/calculator/>

Websites News

A great Chemistry website is **chem4kids**. It offers information on the basics of chemistry. Terms such as matter, atoms and elements are explained in language to suit everyone. A useful resource especially for school-going children.

Others website to check out:

www.bebo.com/I_Love_Science

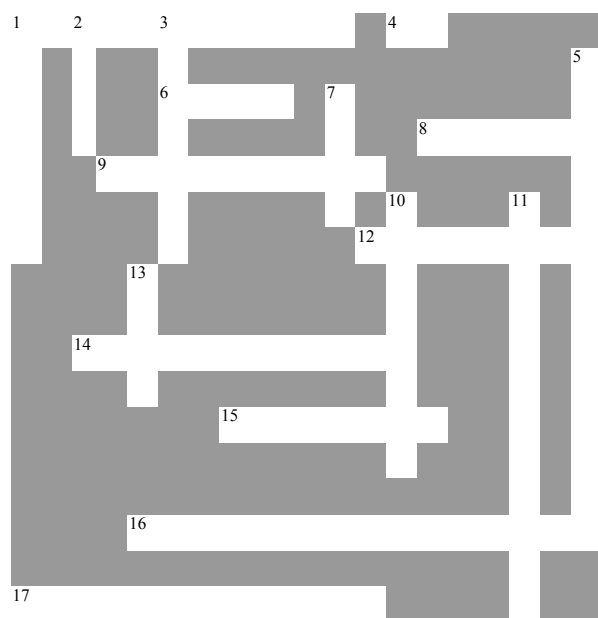
www.science.ie

www.scienceweek.ie

www.discover-science.ie

www.myscience.ie

JUNIOR CROSSWORD



ACROSS

- the changing of a liquid to a gas/vapour
- the ___ scale measures the strength of an acid or base
- ___ water forms a lather easily with soap
- anything that takes up space and has mass
- rainwater with a pH of less than 5.5
- a mixture of a solute and a solvent
- gas, oil and coal
- CH₄
- _____ paper: used to test for the presence of water
- production of a chemical reaction by electricity

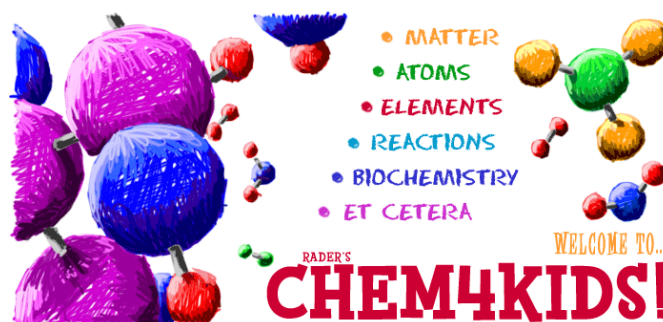
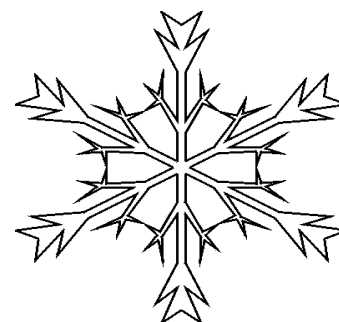
DOWN

- a substance which can not be broken down into simpler substances by chemical means
- smallest part of an element that still has the properties of that element
- the corrosion of iron or steel
- turns limewater milky
- turns blue litmus paper red
- a _____ bond is formed when atoms share electrons
- used to separate two liquids with different boiling points
- ice is ___ dense than water



H₂O Molecule—the “Mickey Mouse” Molecule.

Colour in the snowflake!



Periodic Table of Elements																0		
1	IA										IIA					2		
1	H											He						
3	Li	Be											B	C	N	O	F	Ne
11	Na	Mg											Al	Si	P	S	Cl	Ar
19	K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr
37	Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe
55	Cs	Ba	*La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn
87	Fr	Ra	+Ac	Rf	Ha	106	107	108	109	110								

* Lanthanide Series	58	59	60	61	62	63	64	65	66	67	68	69	70	71
	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu
+ Actinide Series	90	91	92	93	94	95	96	97	98	99	100	101	102	103
	Th	Pa	U	Np	Pu	Am	Cm	Bk	Cf	Es	Fm	Md	No	Lr

Legend - click to find out more...

 H - gas	 Li - solid	 Br - liquid	 Tc - synthetic
 Non-Metals	 Transition Metals	 Rare Earth Metals	 Halogens
 Alkali Metals	 Alkali Earth Metals	 Other Metals	 Inert Elements



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