

Celebrating a year of international chemistry



The International Year of Chemistry...

...brought people together from all over the world to share an appreciation of chemistry and its importance to society.

Launched in January 2011 by the International Union of Pure and Applied Chemistry (IUPAC), and the United Nations Educational, Scientific, and Cultural Organization (UNESCO), IYC recognised the global significance of chemistry. It also marked 100 years since the International Association of Chemical Societies was founded, and 100 years since Marie Curie was awarded the Nobel Prize for Chemistry.

In this special publication, we've captured for prosperity some of the activities that the RSC and its members have organised and taken part in throughout 2011.

JANUARY

The Rt Hon David Willetts MP, Cabinet Minister for Universities and Science, officially launches IYC at the Palace of Westminster. He's joined by co-hosts Mark Lancaster TD MP, Andrew Miller MP and Julian Huppert MP. Guests are treated to some 'explosive' chemistry demonstrations by Hal Sosabowski from the University of Brighton. Members watch the event online via a live webcast.

Women scientists from at least 42 countries gather together via video link and social media channels to share a chemical moment in time over breakfast. At the Chemistry Centre, RSC members watch video interviews recorded just a few hours earlier by their counterparts enjoying breakfasts in Beijing and India, and then record their own views to share. RSC members across the UK hold their own breakfast meetings.



The European Association for Chemical and Molecular Sciences marks IYC with a new book celebrating the achievements of women in chemistry, from early pioneers to present day chemists.

Nearly 500 delegates from all over the world attend the South Africa Chemical Institute's (SACI) IYC launch event at the University of the Witwatersrand in Johannesburg. Supported by the RSC's South Africa (North) Section, the event also welcomes RSC president David Phillips and RSC manager of international projects, Alejandra Palermo.



FEBRUARY

At the Chemistry Centre, scientist and RSC author John Mann takes an audience on a trip through the weird world of drug use and abuse. They hear how the great witch hunts in Europe often stemmed from women extracting and ingesting herbal medicines, then hallucinating and believing they could fly.



The RSC West India Section organises a one-day event to celebrate IYC, the highlight of which is the Women Scientists Symposium. Over 150 women students and teachers attend the event, organised with Sophia College for Women, Mumbai.

Tom Coultate, the author, launches the first in a series of the RSC's 'Chemical Lunchboxes' at the Chemistry Centre. Three more lunchboxes were organised with the University of Reading's Food Science department staff covering a wide variety of topics including food colourings, flavours, cardiovascular disease and sustainability of food.



MARCH

The RSC hosts a visit to the UK by the Director General of the Organisation for the Prohibition of Chemical Weapons (OPCW), HE Ambassador Ahmet Üzümcü. The Ambassador highlights the work of the OPCW and its unique role in ensuring that chemistry is used only for peaceful purposes. The audience of invited guests include foreign embassy ambassadors, senior representatives from the FCO and Defence Science and Technology Laboratory (DSTL) at Porton Down and the Ministry of Defence (MOD), as well as industry and academia representatives.



The RSC's Radiochemistry and Historical Groups honour the centenary anniversary of Marie Curie's Nobel Prize for Chemistry with a lecture that considers her contribution to science and examines other aspects of the history of radiochemistry. Serge Plattard, Counsellor for Science and Technology at the French Embassy, delivers the keynote speech.

The RSC Pakistan Section holds a workshop on forensic sciences where the audience hears from expert speakers on rapidly advancing techniques in forensics.



The RSC takes part in the Cambridge Science Festival. Activities had a 'liquid and water' theme designed to generate interest in the IYC Global Experiment.

APRIL

Pupils from 16 junior colleges in the Hyderabad area of India take part in a two-day practical workshop organised by the RSC Deccan Section. Students try a variety of hands-on activities, including testing the pH of household items and separating plant pigments.

At the Sci Bono Centre in Johannesburg, South Africa, over 200 primary and secondary school children are treated to a morning of chemistry demonstrations on household chemicals, the periodic table and the IYC global experiment on water. The event is supported by the RSC South Africa Section.

RSC student members at the University of Edinburgh take their activities out of the laboratory and onto campus with a series of demonstrations. They engage with others at the university who do not have a connection with chemistry.



The work of two famous Poles is celebrated at King's College, London. Readings about the life of Marie Curie, who was born in Warsaw, are set to the music of Frederic Chopin. The evening is followed by a one-day symposium which celebrates the life and work of Curie and of Helmut Maecke, who is seen below being presented with the RSC Becquerel Medal.

St Stephen's College in Delhi promotes chemistry to students with a lecture, 'Chemical Science: The Glorious Past and Exciting Future'. The talk is given by one of India's most prominent chemists, CNR Rao, and the event is co-sponsored by the RSC.

At the Chemistry Centre, Thames Water's Rob Casey navigates the twists and turns of the history of London's water supply, going back almost 2,000 years to when the Romans originally founded the city.

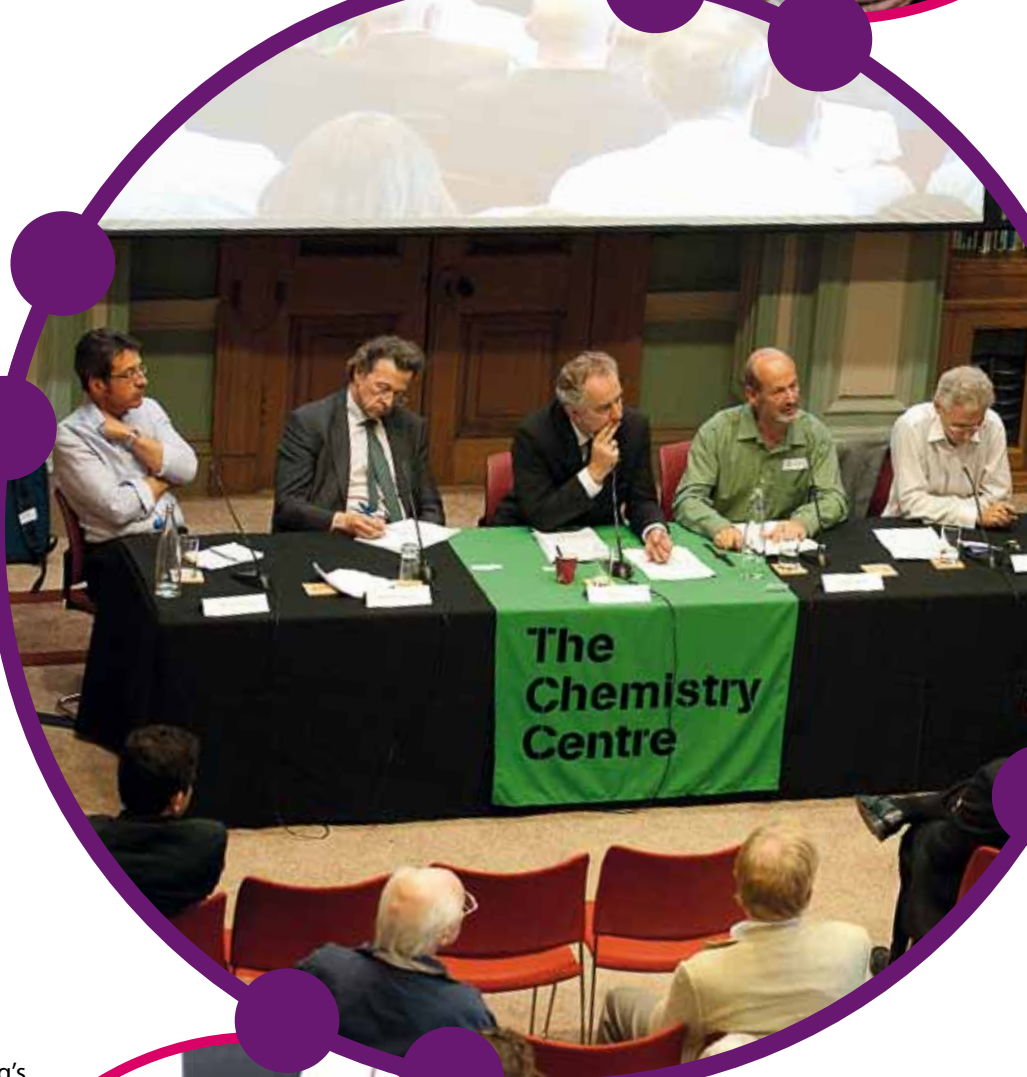


MAY

The RSC's own interpretation of Pan-Galactic Gargle Blasters, the fictional cocktails from Douglas Adams' *Hitchhiker's Guide to the Galaxy*, are served to guests at the Chemistry Centre as part of the RSC's Science on the Silver Screen event. The audience doesn't find the answer to 'life, the universe and everything' but are treated to an informative talk by journalist and author Michael Hanlon and a screening of the 2005 film adaptation.



The RSC hosts a panel of experts and members of the public at the Chemistry Centre to debate whether or not the UK can meet targets for reducing carbon emissions without the use of nuclear power. The panel of experts include author and journalist, George Monbiot, research fellow at Imperial College, Malcolm Grimstone, chief scientist at Greenpeace, Doug Parr, and energy consultant, Roger Levett. The event is oversubscribed and attracts over 4,500 online viewers to watch the event on the RSC website, The Reaction.



RSC president, David Phillips, is Kirsty Young's guest on BBC Radio 4's *Desert Island Discs*. In between his music selections (which included Schubert's Quintet in C Major, First Movement), David highlights the importance of chemistry as he talks about the International Year of Chemistry, his work and his life.



Michael Moore MP, Secretary of State for Scotland, visits the RSC stall at the 'Bang Go the Borders' school science festival at St Mary's Primary School in Melrose. Children are entertained with chemistry-based activities and encouraged to take part in the IYC Global Experiment.

JUNE

The highlight of IYC – the Global Experiment – kicks off in the UK. Children from all over the world take part in the biggest chemistry experiment based on the themes of water measurement and purification. They test the acidity of their local rivers, lakes and waterways. The RSC coordinates efforts in the UK where more schools take part than in any other country in Europe. It attracts a huge amount of media interest including the BBC's *One Show*, BBC TV and radio news bulletins and regional newspapers.



At the Chemistry Centre, Chief Scientist at Scottish Water, Richard Allan, pictured right, discusses the challenges we face in securing freshwater supplies at a global level.



Four hundred school children enjoy an exciting programme of events at the Charterhouse School IYC Day, supported by the RSC Downland Local Section and the Society of Chemical Industry. Speakers include RSC Past President and Nobel Laureate Sir Harry Kroto, Peter Wothers from the University of Cambridge and Reverend Lancaster of Kimbolton Fireworks.

RSC president David Phillips speaks about the importance of chemistry in schools at the Sunday Times Festival of Education. The two-day event features politicians, educationalists, school leaders and think tank experts who come together to discuss the latest issues in education.

The RSC celebrates the remarkable achievements of women in science at the headquarters of the Organisation for Economic Cooperation and Development (OECD) in Paris.

JULY

The RSC hosts a competition for Children from eight countries in Africa and Europe.

Their thought-provoking

artwork draws attention to the role of chemists in industry and academia in providing safe and clean water around the world. The exhibition, *Our Children on Water*, is officially opened by science presenter Johnny Ball at the Chemistry Centre. It tours major European cities: Frankfurt, Prague, Rome, finishing in Barcelona in November. And its legacy continues beyond IYC with a planned trip to the Chemical Heritage Foundation in Philadelphia in January 2012.



AUGUST

To celebrate the 350th anniversary of Robert Boyle's *The Sceptical Chymist*, RSC Fellow Duncan Thorburn-Burns treats a Chemistry Centre audience to an insight into Boyle's life and works, supported by an exhibition from his own personal collection.



Can we live without E-numbers? Do 'functional foods' like probiotics really work? These are the questions being discussed at Café RSC, a series of free informal evening gatherings, open to everyone, at the Chemistry Centre.

David Grayson, Head of the School of Chemistry at Trinity College, Dublin, welcomes Hélène Langevin-Joliot, the granddaughter of Marie and Pierre Curie, at an afternoon of public lectures exploring radioactivity. The event is supported by the RSC's Republic of Ireland Section to celebrate the 100th anniversary of Marie Curie's Nobel Prize, as well as marking 300 years since the School of Chemistry at Trinity College opened. The Science Gallery in Dublin also hosts a special exhibition for IYC, Elements: the Beauty of Chemistry.



SEPTEMBER

The RSC West India Section supports a series of activities in Nagpur, part of the Vidarbha region in central India. These are held in collaboration with the Institute of Science, and the Indira Gandhi National Open University Regional Centre, both in Nagpur. Over 500 schoolchildren visit a government lab and, for many, it is their first opportunity to experience practical chemistry. At another event, children take part in a poster competition on chemistry in their daily lives.

The RSC and GSK launch their series of six lectures with a sports doping debate at the Chemistry Centre. Andy Parkinson, Chief Executive of UK Anti Doping, was there to debate and answer questions from scientists and the public.



Stephen Conlon, HM Consul General at the British Embassy, presents the dean of the faculty of chemistry at Vilnius University with a certificate from the RSC congratulating Lithuanian scientists and teachers for their efforts to promote chemistry.



OCTOBER

Leading industrialists set out their sights for the future and discuss how companies can gain a competitive edge in a one-day conference, 'Innovation to Transform the Chemical Industry', jointly organised by the Society for Chemical Industry and the RSC's Management Group.

The RSC awards the first Chemical Landmark in a European country outside the UK. The University of Ghent, Belgium, is recognised for the 150th anniversary of German chemist August Kekule's publication of his original textbook on organic chemistry. (See the back page for more on RSC Landmarks.)

The world of fashion and chemistry collides in front of passersby in Euston Square, London. The 'Field of Jeans' outdoor exhibition forms part of the Catalytic Clothing project. The brainchild of artist and designer Helen Storey MBE and chemist Tony Ryan OBE, the project demonstrates how clothes treated with a catalyst can clean the air around them. With help from the Belgium Section, the RSC also sponsors a lecture on catalytic clothing at the European Economic and Social Committee Chemistry and Culture Week in Brussels. This major IYC event is also supported by the RSC Belgium Section.

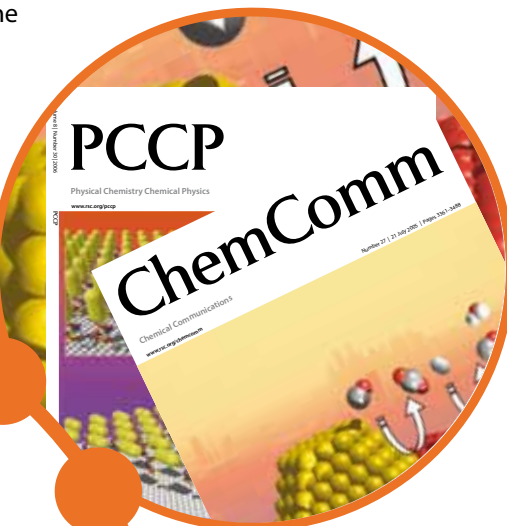
NOVEMBER

For the year, the RSC and the World Gold Council team up to develop a unique online microsite offering free access to some of the RSC's best gold-related publications throughout 2011. The site features a spread of historical and cutting edge papers, spanning catalysis, nanotechnology and novel materials.

Sir John Meurig Thomas, Honorary Professor at the Department of Materials Science and Metallurgy, University of Cambridge, explores the genius of Michael Faraday at a free public lecture at Cardiff University.



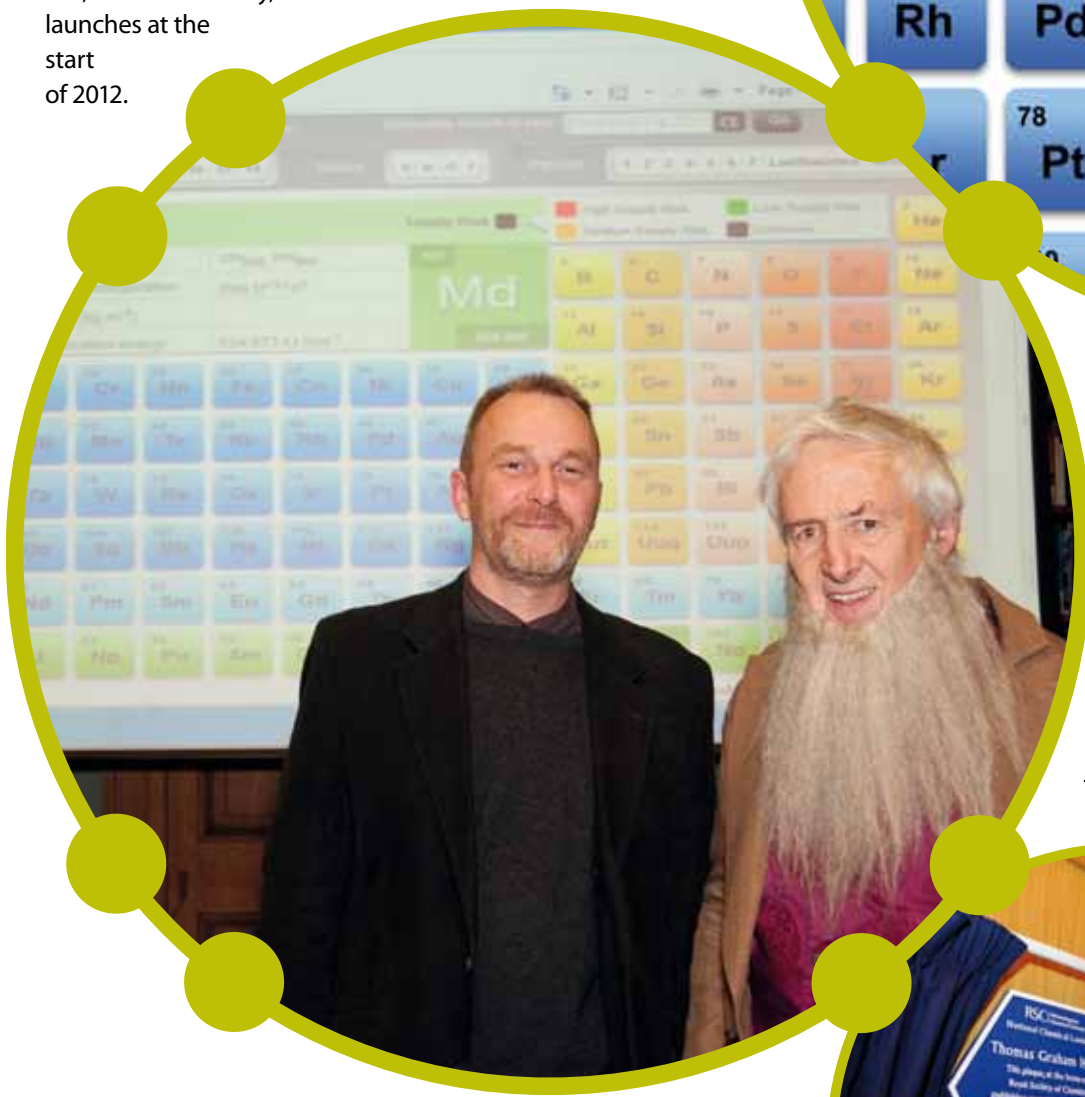
Hywel Jones of the Materials and Engineering Research Institute, presents 'What's in my Stuff' – a science and art based approach to raising awareness of the use of chemical elements in consumer technology.



DECEMBER

RSC president David Phillips travels throughout the UK and around the world during 2011, promoting chemistry through a variety of entertaining lectures. In 'A Little Light Relief', David uses his expertise in photomedicine to explore the effects of light on the skin. With the help of his 30 year-old glass baby, he demonstrates how light is used to diagnose and treat problems like skin complaints and neonatal jaundice in modern medicine.

The RSC launches its new Visual Elements periodic table as a legacy to the International Year of Chemistry. Gordon Woods, an expert on the periodic table, plays the part of Dmitri Mendeleev at the Chemistry Centre to introduce guests to the fully interactive tool. Artist Murray Robertson explains the inspiration behind his designs for each element. This new table allows you to explore every element, its properties and how scarce it is. It forms part of the RSC's new online education site, Learn Chemistry, which launches at the start of 2012.



The International Year of Chemistry was brought to an end when the RSC celebrated its own anniversary of 170 years of publishing at a chemical landmark ceremony at Thomas Graham House in Cambridge.



And all this too...

This special celebration of IYC 2011 wouldn't be complete without recognising the huge variety of activities that the RSC, its member networks, and the wider chemistry community have been involved with to raise awareness of the role of chemistry in society. Every effort has been made to list all of the events that were sent to the RSC and any omissions are unintentional.

RSC West India PhD Students Symposium University of Goa, India • **RSC West India PG Students Symposium** Vaze College, Mumbai, India • **International Conference on Chemistry for Mankind** Nagpur University, India • **Can Chemistry Be Green?** University of Nottingham, UK • **Captivating Chemistry** Sheffield Hallam University, UK • **Inauguration of IYC 2011** University of Delhi, India • **Elephant's Toothpaste – A Chemistry Show with a Difference** Newcastle University, UK • **Marie Curie and Aspects of the History of Radiochemistry** RSC, The Chemistry Centre, London, UK • **Look What Chemistry Has Done for Me!** RSC, Cambridge, UK • **Metals, Peptides and Nuclear Medicine** St Thomas' Hospital, London, UK • **Why Water is Weird** RSC, The Chemistry Centre, London, UK • **Astrochemistry: Spaced-out Molecules!** University of Nottingham, UK • **NJC Symposium: New Directions in Chemistry** Strasbourg • **IYC Celebration Day** Museum of Science and Industry, Manchester, UK • **Green Solvents – Alternative Fluids in Science and Application** *Green Chemistry* Special Issue RSC Publishing, UK • **The Times Cheltenham Science Festival** Cheltenham Town Hall, UK • **Physics and Chemistry in a Finite World** University of Nottingham, UK • **Global Water Experiment** Benison Private Nursery, Chester • **Marie Curie Sklodowska Anglo-Polish Society** Bristol University, UK • **NCL-IISER-ESC Chemistry Workshops** Pune, India • **Women, Health and the Environment** RSC Pakistan Section, India • **Understanding and Influencing the Scottish Parliament** The Royal Society of Edinburgh, UK • **Café RSC: Functional Foods: Sound Science or Marketing Hype?** RSC, The Chemistry Centre, London, UK • **Chemical Magic – For Sixth Form Students** University of Nottingham, UK • **RSC West India Outreach Event for Young Students** St Mary's ICSE School, Navi Mumbai, India • **Water Quality: How Clean is Clean?** Brunel University, UK • **Why Do Chemists Want to Make New Molecules?** University of Nottingham, UK • **IYC2011 National Eisteddfod of Wales** Wrexham, UK • **Recharging Our Future** RSC, The Chemistry Centre, London, UK • **Reflections on the Surface of Reality** University of Nottingham, UK • **IYC Celebration** Tapton School Sheffield, UK • **Radiochemistry: Marie Curie to Present Day** AWE, William Penney Theatre, Reading, UK • **Explosives in Society – Younger Members Event** London Metropolitan University, UK • **Chemistry and Plants** University of Oxford, UK • **Indian Patent Enforcement in the Chemical Arts** The Law Society, London, UK • **Amazing Chemistry Applied Daily** Imperial College London, UK • **XVII National Week of Science and Technology** Saint Thomas University, Chile • **Chemistry in Space** Henley Business School, Reading, UK • **The Role of Chemists in the Discovery of New Medicines** University of Nottingham, UK • **Using Chemistry to Discover New Medicines and Improve Lives** University of Cambridge, UK • **Chemistry of Autumn** Royal Botanic Garden, Edinburgh, UK • **The Elements: League Table of the Luxuries?** Wesley Centre, Chester, UK • **Chemistry for Distance Learners** Institute of Science Nagpur/West India Section, Nagpur, India • **Eating Sustainably: Dream or Reality?** RSC, The Chemistry Centre, London, UK • **Magic, Folk Medicine, Drugs and Chemistry** Imperial College, London, UK • **The Beauty of Chemistry** Trinity College, Dublin • **Ceremony Commemorating the Work of August Kekulé** University of Ghent, Belgium • **How Creative are You? Schools Competition** South East Education Division, UK • **The Science of Fireworks!** University of Cambridge, UK • **Leicester Griess Lecture** University of Leicester, UK • **The Bigger Bang Show** Norwich Theatre Royal, UK • **From Penicillin to Oxygen Sensing in Humans** Charterhouse School, Godalming, UK • **Harnessing the Light Fantastic** RSC, The Chemistry Centre, UK • **Nuclear Magnetic Resonance** University of Nottingham, UK • **Science Alive** Hong Kong Science Museum, Lecture, China • **RSC Alternative Careers in Chemistry** Newcastle University, UK • **The Three Lives of Marie Sklodowska-Curie** RSC, The Chemistry Centre, UK • **RSC Chemistry Lecture for Schools** University College Dublin, Ireland • **Chemistry, Chocolate and Murder?** Cheltenham Ladies College, UK • **GE-RSC Chemistry Presentation Competition** GE China Technology Center, Shanghai, China • **Science for a Safer World** RSC, The Chemistry Centre, UK • **RSC Chemistry Presentation Competition** The British International School, Shanghai, China • **Watts New with Clean Energy?** RSC, The Chemistry Centre, UK • **Where Chemistry Speaks and Darwin is Silent** Canterbury Christ Church University, UK • **The Quest for a Clean Drink** RSC, The Chemistry Centre, UK • **A Chemistry of Music** University of Edinburgh, UK • **Advancing the Chemical Sciences Through Collaborative Research** Pakistan Section • **A Chemistry of Music** Edinburgh and SE Scotland Local Section • **The Potions and Explosions Chemistry Show** University of Ulster • **The Night of the Arts in Helsinki** Helsinki University • **Science for Smarties** Science Oxford/Thames Valley Local Section

Chemical Landmarks...

Throughout 2011, the RSC formally recognised historical sites where important chemical contributions have been made. The RSC awarded five Chemical Landmarks during the International Year of Chemistry:

- Unilever Research and Development Laboratory at Port Sunlight, celebrating one hundred years of its outstanding scientific contributions to the home and personal care industry.
- The University of Manchester, for Ernest Rutherford's discovery of the atomic nucleus.
- The Catalyst Science Discovery Centre in Widnes, close to the ICI laboratory where halothane, the first synthetic anaesthetic, was discovered and manufactured by Charles Suckling and his team
- The University of Ghent, Belgium, in recognition of the 150th anniversary of German chemist August Kekule's publication of his original textbook on organic chemistry.
- The RSC offices at Thomas Graham House, Cambridge, to recognise 170 years of scientific publishing.

Royal Society of Chemistry
Email: iyc@rsc.org
www.rsc.org
Registered Charity Number: 207890

Thomas Graham House
Science Park, Milton Road
Cambridge, CB4 0WF, UK
Tel: +44 (0)1223 420066

The Chemistry Centre
Piccadilly, London
W1J 0BA, UK
Tel: +44 (0)20 7437 8656

RSC International Offices
Beijing, China
Shanghai, China
Bangalore, India

Tokyo, Japan
Philadelphia, USA
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