Whole page last updated 12 April 2024

**Full list of all the articles published in Volumes 1-33 of Chemistry Review, arranged by feature**

**100 years ago**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| Robert Wilhelm Bunsen (1811-1899) | 8 | 3 |
| Edward Frankland (1825-1899) | 9 | 2 |
| Henry Moseley: understanding atomic numbers | 23 | 1 |
| Niels Bohr and atomic structure | 23 | 2 |

**200 years ago**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| Joseph Black (1728-1799) | 9 | 1 |

**Answer back**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** | **Exam Board** | **Vol.** | **Issue** |
| The main features of the atomic spectrum of hydrogen | JMB | 1 | 1 |
| A question of organic reactions | JMB | 1 | 2 |
| Chemistry from group V | University of London Schools Examinations 1989 | 1 | 3 |
| A question of ideality | JMB | 1 | 4 |
| Rates and orders of reaction | Oxford and Cambridge Examinations Board | 1 | 5 |
| Acids and equilibria | JMB | 2 | 1 |
| Testing and estimating ions | JMB | 2 | 2 |
| Alternative fuels | Salters' Advanced Chemistry | 2 | 3 |
| Have you got redox potential | JMB | 2 | 4 |
| A question of applying knowledge | Salters' Advanced Chemistry | 2 | 5 |
| Silicone polymers | University of London Examinations and Assessment Council, 1992 Nuffield A-level examination | 3 | 1 |
| Distinguishing between pairs of organic compounds | JMB Syllabus B paper 2, Section B, 1990 | 3 | 2 |
| The Chemistry of Life | Nuffield Chemistry Special Study 1989 | 3 | 3 |
| Social Economic, Environmental and Technological aspects of Chemistry | Oxford & Cambridge, Paper 3 1992 | 3 | 4 |
| Born-Haber cycle and lattice energies | Nuffield Paper 2, ULEAC 1988 | 3 | 5 |
| A Balancing Act | JMB 1991, paper IIB | 4 | 1 |
| Petroleum technology | Salters' Advanced Level Chemistry | 4 | 2 |
| The importance of revision | Salters’ Paper 1, 1992 | 4 | 3 |
| Directing aromatic substitution | JMB Syllabus A and Syllabus B 1991 | 4 | 4 |
| Mr Midgeley's discovery CFCs | Salters A level examinations 1994 | 4 | 5 |
| Tackling calculations | Nuffield Chemistry 1993, Paper 1 | 5 | 1 |
| The mystery of the dead deer | Salters A-level 1994 | 5 | 2 |
| Ammonia | Oxford and Cambridge Paper 3, Section A 1992 | 5 | 3 |
| Transition Metals | NEAB Paper B Section IIA, 1995 | 5 | 4 |
| An Unusual Beetle | Salter A level Paper 1 1995 | 5 | 5 |
| Reactions of Halogenoalkanes with Potassium Hydroxide | NEAB | 6 | 1 |
| A Potentially Dangerous Fertiliser | Salters (OCR) | 6 | 2 |
| Knocking Your Organic Chemistry into Shape | Oxford & Cambridge | 6 | 3 |
| An Organic Whodunit | WJEC | 6 | 4 |
| Copper Chemistry | Salters (OCR) | 6 | 5 |
| Structures Equations & Mechanisms | NEAB | 7 | 1 |
| Kinetics | NEAB | 7 | 2 |
| Planning Your Chemistry | Nuffield | 7 | 3 |
| Periodic Pattern | NEAB | 7 | 4 |
| Chromatography & Structure of Dipeptide | Nuffield | 7 | 5 |
| Complex Information | OCSEB | 8 | 1 |
| Does faster mean further? | WJEC | 8 | 2 |
| Organic Chemistry | NEAB | 8 | 3 |
| Energy, bonding and haloalkanes | Nuffield | 8 | 4 |
| Obtaining Marks from obtaining Methods | NEAB | 8 | 5 |
| Ethanol as a Fuel | Salters (OCR) | 9 | 1 |
| Solving a chemical jigsaw puzzle | NEAB | 9 | 2 |
| Structure and bonding | NEAB | 9 | 3 |
| Phosphorus and friends | EdExcel | 9 | 4 |
| Testing Halide Ions | AEB | 9 | 5 |
| Testing much more than fertilizers | EdExcel | 10 | 1 |
| Knowledge and how to apply it | NEAB | 10 | 2 |
| Assorted Alcohols | AQA | 10 | 3 |
| Correcting Fluid correct? | NEAB | 10 | 4 |
| Redox rights and wrongs | Edexcel | 11 | 1 |
| Sniffing for extra marks | WJEB | 11 | 2 |
| Patterns in the periodic table | Scottish Higher | 11 | 3 |
| Oxidation and reduction at AS and A2 | AQA | 11 | 4 |
| Electronic Structure and Chemical Bonding | Edexcel | 12 | 1 |
| Familiar and less familiar acids | WJEC | 12 | 2 |
| Fuelling the Fire | OCR | 12 | 3 |
| Particles, bonding and shapes | AQA | 12 | 4 |
| Get in the Right Group | OCR | 13 | 1 |
| Organic Synthesis | AQA | 13 | 2 |
| Synoptic Papers and Synoptic Questions | Edexcel | 13 | 3 |
| Longer Responses | AQA | 13 | 4 |
| Halons and the demise of the ozone | OCR | 14 | 1 |
| Tales of the Unexpected June 2003 | WJEC | 14 | 2 |
| Acids, bases, pH and buffers | AQA | 14 | 3 |
| Any Old Ion? | Salters (OCR) – A2 | 14 | 4 |
| Equilibrium, Enthalpy, Entropy ... and Extras | Salters (OCR) – A2 | 15 | 1 |
| Photochemical smog | Salters - Advanced | 15 | 2 |
| Keep in Contact | Edexcel - AS | 15 | 3 |
| Why do endothermic reactions happen? | AQA – A2 | 15 | 4 |
| Driven by Enthalpy | Edexcel - AS | 16 | 1 |
| Ironing out the problem | Edexcel - A2 | 16 | 2 |
| A synoptic organic question | AQA - A2 | 16 | 3 |
| Extracting chemistry with a metal | Salters (OCR) - AS | 16 | 4 |
| A weighty problem? | Salters (OCR) - A2 | 17 | 1 |
| Genning up on nitrogen | AQA | 17 | 2 |
| Changing gear to AS | Salters (OCR) - AS | 17 | 3 |
| Glorious glycerol | Salters (OCR) - A2 | 17 | 4 |
| Getting into shape with isomers | AQA - AS | 18 | 1 |
| Communicating chemistry | Salters (OCR) - AS | 18 | 2 |
| Watch your language | AQA | 18 | 3 |
| Sulfuric acid | Edexcel | 18 | 4 |
| Vitamin C | Salters (OCR) – A2 | 19 | 1 |
| Chemistry and fireworks | Salters (OCR) – AS | 19 | 3 |
| Rates and catalysis | AQA | 19 | 4 |
| Fun with phenylethene | Salters (OCR) – AS | 20 | 1 |
| Calculations | Salters (OCR) – AS & A2 | 20 | 2 |
| What comes out of your kettle? | AQA | 20 | 4 |
| It ain’t what you do (it’s the way you do it) | AQA | 21 | 1 |
| Structure and spectroscopy | Salters (OCR) – A2 | 21 | 2 |
| Folic acid | Salters (OCR) – A2 | 21 | 3 |
| Controversial chlorine | Salters (OCR) – AS | 22 | 1 |
| Chemistry from a natural product | Salters (OCR) – AS | 22 | 2 |
| Tricky transition metals | IB – Higher level | 22 | 3 |
| Planning for success in extended-answer questions | Salters (OCR) - AS | 23 | 1 |
| Absinthe: Lessons from the green fairy | Salters (OCR) – AS | 23 | 3 |
| Alkenes and clean screens | Salters (OCR) – AS | 24 | 1 |
| Examining equilibrium | Salters (OCR) – A2 | 24 | 3 |
| Indications of change | IB – Higher level | 24 | 4 |
| All hail the halogens | AQA | 25 | 3 |
| A complex way to find nickel compounds | Salters (OCR) – A2 | 25 | 4 |
| Focus on the basics | Salters (OCR) – A2 | 26 | 1 |
| Wrack your brains | Salters (OCR) – AS | 26 | 2 |
| Not-so stainless steel | Salters (OCR) – A2 | 26 | 3 |
| Concentrate for first-rate answers | AQA | 26 | 4 |
| Acids, alkalis and pH | AQA | 27 | 1 |
| Acetals and hemiacetals | AQA | 27 | 3 |
| Polymers and azo dyes | OCR – A2 | 28 | 1 |
| Synthesis and analysis | Edexcel | 28 | 2 |
| Concentrate on sulfuric acid | AQA | 29 | 1 |
| Sodium and so on | AQA | 30 | 3 |
| The sweet smell of success | Salters (OCR) – A2 | 31 | 2 |
| Calculate carbonates with confidence | AQA | 31 | 3 |
| Propanoic practicalities | AQA | 32 | 4 |
| Reactions of *d*-block elements | OCR | 33 | 1 |
| Keen on alkenes | OCR | 33 | 3 |
| Intermolecular forces | AQA and OCR | 33 | 4 |

**Back page**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| Crystal gardens | 4 | 1 |
| Horse doping | 4 | 2 |
| Watercycle | 4 | 3 |
| Column chromatography | 4 | 4 |
| Mixing colours | 4 | 5 |
| The flame test | 5 | 1 |
| Growing a crystal tree | 5 | 2 |
| Chemiluminescence | 5 | 3 |
| Pyrrole pigments | 5 | 4 |
| Stained glass | 5 | 5 |
| Winning crystals | 6 | 1 |
| Salt mining | 6 | 2 |
| The island that time forgot | 6 | 3 |
| Rock 'n' roll eggs | 6 | 4 |
| Virtual reality | 6 | 5 |
| Oceans of mercury | 7 | 1 |
| Up in smoke | 7 | 2 |
| Women of achievement | 7 | 3 |
| Black smokers | 7 | 4 |
| Something lost in the translation | 7 | 5 |
| The welding torch | 8 | 1 |
| Drugs in the hay | 8 | 2 |
| The Meissner effect (collagen/gelatin) | 8 | 3 |
| Wobbly chemistry | 8 | 4 |
| Lac | 8 | 5 |
| Egyptian Blue & Nefertiti | 9 | 1 |
| Spiders superfibre | 9 | 2 |
| The Dome | 9 | 3 |
| Galileo thermometer | 9 | 4 |
| Hydrogen car | 9 | 5 |
| Reaching for the sky | 10 | 1 |
| Fire-blocking gel | 10 | 2 |
| A different slant on DNA | 10 | 3 |
| A close encounter | 10 | 4 |
| Thread of science | 11 | 1 |
| Glowing fireflies | 11 | 2 |
| Where there’s smoke there’s gravity | 11 | 3 |
| Displaying vision: LEP | 11 | 4 |
| Beyond the molecules | 12 | 1 |
| Microdiamonds | 12 | 2 |
| Sniffing for trouble | 12 | 3 |
| Airbags | 12 | 4 |
| Graphite polyhedral crystals | 13 | 1 |
| Life under ice | 13 | 2 |
| Molecules that grow on trees! | 13 | 3 |
| Three forms of elemental carbon | 13 | 4 |
| Like a diamond in the sky | 14 | 1 |
| Geothermal energy | 14 | 2 |
| Swimming in a nano sea | 14 | 3 |
| Brightening the future | 14 | 4 |
| The world’s smallest test tube | 15 | 1 |
| Little Dragon | 15 | 2 |
| Iron meteorites on Mars | 15 | 3 |
| I’m forever blowing colourful bubbles | 15 | 4 |
| DNA origami | 16 | 1 |
| A trip to the apothecary’s | 16 | 2 |
| Sniffer bees | 16 | 3 |
| Raindrops on Titan | 16 | 4 |
| Dragon’s breath | 17 | 1 |
| Fireflies: a postcard from Sri Lanka | 17 | 2 |
| …and then the heav’n espy | 17 | 3 |
| Wonderful woad and incredible indigo | 17 | 4 |
| Chemistry detectives | 18 | 1 |
| Why do onions make you cry? | 18 | 2 |
| Dinosaur mummy | 18 | 3 |
| Periodic table | 18 | 4 |
| Face the truth | 19 | 1 |
| Viral DNA packaging | 19 | 2 |
| Quinine | 19 | 3 |
| PET imaging of tumours | 19 | 4 |
| The PET that got away | 20 | 1 |
| Science beats food fraud | 20 | 2 |
| Feeling the heat | 20 | 3 |
| Polymers, plastics and superglue | 20 | 4 |
| Gecko glue | 21 | 1 |
| Chemistree: food dyes | 21 | 2 |
| Perilous poisons | 21 | 3 |
| The smell of success | 21 | 4 |
| How hot is your chemistry? | 22 | 1 |
| Rat wars | 22 | 2 |
| You can’t beat beetroot | 22 | 3 |
| Celebrating the double helix | 22 | 4 |
| Hydrogen fuel cells: Harnessing explosive energy | 23 | 1 |
| Burning blue | 23 | 2 |
| Feeling blue: Lobster rarities | 23 | 3 |
| Super foods | 23 | 4 |
| Follicle forensics | 24 | 1 |
| Cracking down on chemical weapons | 24 | 2 |
| Wake up and smell the coffee | 24 | 3 |
| Can we grow gold on plants? | 24 | 4 |
| 3, 2, 1, liftoff! | 25 | 1 |
| Spectroscopy: At the heart of art | 25 | 2 |
| Colouring the dinosaurs | 25 | 3 |
| Lights in the deep | 25 | 4 |
| Seeing with chemistry | 26 | 1 |
| Back to Sherlock’s crime scene | 26 | 2 |
| Life-saving viper | 26 | 3 |
| The two sides of thalidomide | 26 | 4 |
| Fuelling Formula 1 | 27 | 1 |
| Botulinum toxin: Killer of cure? | 27 | 2 |
| Molecular cars | 27 | 3 |
| Sunshine and vitamin D | 27 | 4 |
| Conservation and cyclododecane | 28 | 1 |
| Spectroscopy of space | 28 | 2 |
| Valentine chemistry | 28 | 3 |
| The chemistry of coral bleaching | 28 | 4 |
| Radical clean-up | 29 | 1 |
| Endangered elements | 29 | 2 |
| For the fake of auld lang syne... | 29 | 3 |
| Creating the lunar seas | 29 | 4 |
| How have cave paintings lasted so long? | 30 | 1 |
| Bringing poisoners to justice | 30 | 2 |
| The metal that melts in your hand | 30 | 3 |
| Battling cancer with bees | 30 | 4 |
| What’s in a nettle sting? | 31 | 1 |
| Emergency oxygen | 31 | 2 |
| SHERLOC: Mars detective | 31 | 3 |
| Oil on troubled waters | 31 | 4 |
| Belladonna: not just a pretty face | 32 | 1 |
| The chemistry of skunks | 32 | 2 |
| The lotus effect | 32 | 3 |
| Landmark DNA discoveries | 32 | 4 |
| Ketamine: why stereoisomers matter in medicine | 33 | 1 |
| What are tears made of? | 33 | 2 |
| Brush up that smile | 33 | 3 |
| A good read | 33 | 4 |

**Chemical Heroes**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| A tough mistake | 11 | 1 |

**Chemistry in medicine**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| Photochemistry and drug synthesis | 28 | 2 |

**Chemistry on the web / Chemistry online**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| Webelements | 6 | 1 |
| Finding information about degree courses | 6 | 2 |
| Molecule of the Month | 6 | 3 |
| Chemystery | 6 | 4 |
| Buckminsterfullerenes | 7 | 1 |
| Green pages | 7 | 2 |
| Ring the changes with *Chime* | 7 | 3 |
| Life, the universe and the electron | 7 | 4 |
| Poison | 8 | 1 |
| Fire! | 8 | 2 |
| Green sites | 9 | 1 |
| The Nobel prize | 9 | 2 |
| A world of virtual chemistry | 9 | 3 |
| A site for you | 9 | 4 |
| Surf ‘n’ learn | 9 | 5 |
| To boldly go… | 10 | 1 |
| Chemistry in the shed! | 10 | 2 |
| Virtually isomeric | 10 | 3 |
| No worries! | 10 | 4 |
| Chocolate gingers | 11 | 1 |
| The virtual library | 11 | 2 |
| Plastastic! | 11 | 4 |
| Find your way with the web index | 12 | 2 |
| Catalysis for success! | 12 | 3 |
| The double helix 50 years on | 12 | 4 |
| Analyse this! | 13 | 1 |
| British Antarctic Survey | 13 | 2 |
| Transition metals in organic chemistry | 13 | 4 |
| Light: the fuel of life | 14 | 1 |
| Chemistry by numbers | 14 | 2 |
| A greener industry | 14 | 3 |
| Chemical role models | 15 | 1 |
| The science of surfing | 15 | 2 |
| Spectroscopy, mechanisms and calculations online | 15 | 3 |
| A world of science just a click away | 15 | 4 |
| The nano-world wide web | 16 | 1 |
| Practical internet | 16 | 2 |
| Extreme internet | 16 | 3 |
| Bright sites: in search of the most useful chemistry websites | 16 | 4 |
| Molecule of the month | 17 | 1 |
| The great communicator | 17 | 2 |
| Internet dating | 17 | 3 |
| Chemistry in car engines | 17 | 4 |
| iExperiment | 18 | 1 |
| Professor Dave: Youtube chemist | 20 | 1 |
| ChemSpider | 20 | 4 |
| Envirocrew.org: sustainability works | 23 | 4 |
| Picture it…Chemistry | 24 | 4 |
| Massive open online courses (Moocs) | 27 | 1 |

**Chemystery**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| The case of the missing scientist: part 1 | 18 | 1 |
| The case of the missing scientist: part 2 | 18 | 2 |
| The case of the missing scientist: part 3 | 18 | 3 |
| The case of the missing scientist: part 4 | 18 | 4 |

**Did you know?**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| Optical isomers and penicillin | 27 | 1 |
| Photoswitching isomers | 28 | 1 |
| Knock knock… | 28 | 3 |
| Scrambled scientists | 29 | 1 |

**Encounter**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| Chemical landmarks of the twentieth century | 9 | 3 |
| Chemistry in slow motion | 9 | 5 |
| A date with the high and mighty of science | 10 | 2 |
| Malcolm Cunnington: the man in the white coat! | 10 | 4 |
| How snails could help repair broken bones | 12 | 1 |
| Showcase Science 2005 | 15 | 2 |
| Tracking your degree application | 15 | 4 |
| Fruity electricity: Grätzel solar cells | 16 | 3 |
| Extremophiles in New York | 16 | 4 |
| Two pyrones and beyond… | 17 | 1 |
| Call to A-level students: preparations begin for Showcase Science 2009 | 18 | 2 |
| Rainforest chemistry: investigating the atmosphere | 19 | 3 |
| Cutting-edge chemistry | 20 | 3 |
| Polymers and tulips: a year in industry | 21 | 1 |
| AAAS Conference | 21 | 2 |
| SeXeY chemistry | 22 | 4 |
| Food waste: beyond the bin | 23 | 4 |
| The life of a first-year chemistry student | 24 | 1 |
| Three years or four? Completing a chemistry degree | 24 | 3 |
| Revising 25 years of chemistry | 25 | 1 |
| Preventing catastrophic climate change | 25 | 2 |
| Treating the AIDS epidemic | 25 | 3 |
| Feeding the world with chemistry | 25 | 4 |
| Life in undergraduate labs | 26 | 3 |
| Atmospheric camp at York | 26 | 4 |
| Science Down Under | 27 | 2 |
| Interview with Nobel prizewinner Bernard Feringa | 27 | 3 |
| Solving climate change in a week | 27 | 4 |
| Chemistry with altitude | 28 | 4 |
| The elephant in the lab | 29 | 2 |
| Chemistry in China | 29 | 4 |
| Citizen science for chemists | 30 | 4 |
| Teaching chemistry to computers | 32 | 1 |
| Pointing the finger at cocaine users | 32 | 2 |
| Preserving Roman paintings | 33 | 1 |
| Did your chemistry teachers lie to you? | 33 | 4 |

**Focus on industry**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| Salt | 6 | 2 |
| Making inks stick | 9 | 4 |
| The perfect solution: taking catalyst recycling to a new level | 17 | 2 |
| Phenol | 19 | 3 |
| Polyamides | 20 | 1 |
| Kevlar and composites | 20 | 2 |
| Calcium carbonate (CaCO3) | 21 | 1 |
| Biotechnology | 21 | 3 |
| Applications in agriculture: fertilisers | 22 | 1 |
| Applications in agriculture: fungicides | 22 | 2 |
| Applications in agriculture: herbicides | 22 | 3 |
| Applications in agriculture: insecticides | 22 | 4 |
| Catalysis: heterogeneous catalysts | 23 | 1 |
| Applications of heterogeneous catalysts | 23 | 2 |
| Catalysis: homogeneous catalysts | 23 | 3 |
| Biotechnology in the chemical industry: biodegradable polymers | 24 | 1 |
| Biotechnology in the chemical industry: biofuels | 24 | 2 |
| Recent advances in biofuel production | 24 | 3 |
| Biorefineries | 24 | 4 |
| Copper | 25 | 1 |
| Titanium | 25 | 2 |
| Zinc | 25 | 3 |
| Magnesium | 25 | 4 |
| Colourants: Where does colour come from? | 26 | 1 |
| Classifying colourants by method of application | 26 | 2 |
| Pigments and high-tech colourants: What are the technical applications of colour? | 26 | 3 |
| Making paint | 26 | 4 |
| Squeaky clean with surfactants | 27 | 2 |
| Soap and other surfactants | 27 | 3 |
| Chemicals in cleaning | 27 | 4 |
| Extracting oil and gas | 28 | 1 |
| What happens in an oil refinery? | 28 | 2 |
| Cracking and related refinery processes | 28 | 3 |
| Fracking | 28 | 4 |
| Aluminium | 29 | 1 |
| Iron | 29 | 2 |
| Steel | 29 | 3 |
| Lead | 29 | 4 |
| Characterising polymers | 30 | 1 |
| Manufacturing and formulating polymers | 30 | 2 |
| Recycling polymers | 30 | 4 |
| Nanomaterials | 31 | 1 |
| Oxygen production | 31 | 2 |
| Edible fats and oils | 31 | 3 |
| Silicones | 31 | 4 |
| Ammonia | 32 |  |
| Nitric acid | 32 |  |
| Chlorine | 32 |  |
| Methanal plastics | 32 |  |
| Sulfuric acid | 33 |  |
| Phosphorus | 33 |  |
| Hydrogen | 33 |  |
| Fluoropolymers | 33 |  |

**How chemistry works / How science works**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| Modelling the atom | 17 | 1 |
| The noble gases: not so unreactive after all | 17 | 3 |
| How the periodic table was born | 17 | 4 |
| What is everything made from? | 18 | 3 |
| Boyle’s and Charles’ laws: a load of hot air? | 19 | 1 |
| Peer review: avoiding media scare stories | 19 | 2 |
| To err is scientific | 20 | 4 |
| Patents: protecting your ideas | 22 | 4 |
| Making alkenes: the Wittig reaction | 23 | 2 |
| Nuclear Magnetic Resonance | 24 | 4 |
| Investigating the structure of nucleic acids | 28 | 2 |
| The future of the periodic table | 28 | 4 |
| Energy | 29 | 1 |
| The f-block elements | 29 | 3 |
| Fighting fallacies in chemistry communication | 29 | 3 |
| Myth busting | 29 | 4 |
| Second-generation biofuels | 30 | 2 |
| Geoengineering: A climate of uncertainty? | 30 | 2 |
| Can an algorithm go rogue? | 31 | 1 |
| How to spot greenwashing | 31 | 2 |
| Contesting colonialism in chemistry class | 31 | 3 |
| Optimising catalysed reactions: the role of analytical chemistry | 32 | 3 |
| Biodegradable polmers | 32 | 4 |
| Chemistry beyond the boundaries | 33 | 2 |
| Cryo-electron microscopy: a revolutionary approach to determining protein structures | 33 | 3 |

**In pictures**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| Structure of insulin | 1 | 1 |
| A closer look at clay | 1 | 2 |
| A hydrogen plant | 1 | 3 |
| The work of a conservator | 1 | 4 |
| Models of atoms | 1 | 5 |
| Different forms of carbon | 2 | 1 |
| The Periodic Table | 2 | 2 |
| What happens in a Bunsen flame? | 2 | 3 |
| Fast & fresh (sandwiches) | 2 | 4 |
| From dolomite to magnesium oxide | 2 | 5 |
| Versatile silicones | 3 | 1 |
| Infrared spectrometry | 3 | 2 |
| Gold, frankincense and myrrh | 3 | 3 |
| History of the atmosphere | 3 | 4 |
| Chemistry can detect faulty genes | 3 | 5 |
| A prize collection (Nobel prize winners & stamps) | 4 | 1 |
| Gas chromatography | 4 | 2 |
| Water | 4 | 3 |
| Molecular fossils | 4 | 4 |
| The rocaglamide story | 4 | 5 |
| Getting your pinta from the cow | 5 | 1 |
| Salt of the earth | 5 | 2 |
| Fractional Distillation | 5 | 3 |
| Nobel | 5 | 4 |
| Nuclear magnetic resonance | 5 | 5 |
| First class organic chemistry | 6 | 1 |
| Ways of representing proteins | 6 | 2 |
| Chemistry in the open air | 6 | 3 |
| Mass spectrometry | 6 | 4 |
| Water treatment | 6 | 5 |
| A breath of fresh air | 7 | 1 |
| Chocolate | 7 | 2 |
| Challenge of materials | 7 | 3 |
| Thermal analysis | 7 | 4 |
| Seeing atoms | 7 | 5 |
| pH: Who needs to know | 8 | 1 |
| Medicines in the garden | 8 | 2 |
| Chemistry under the microscope | 8 | 3 |
| Chemistry on track | 8 | 4 |
| The brewer's art | 8 | 5 |
| Gemstones | 9 | 1 |
| Fireworks | 9 | 2 |
| Molecules of the millennium | 9 | 3 |
| Generating electricity | 9 | 4 |
| Testing air quality | 9 | 5 |
| Visual elements | 10 | 1 |
| Phosphorus | 10 | 2 |
| It’s a chiral world! | 10 | 3 |
| Chemistry colour & light | 10 | 4 |
| Food to dye for | 11 | 1 |
| Antioxidants | 11 | 2 |
| Biodiesel | 11 | 3 |
| Polymer protected professionals | 11 | 4 |
| Dyeing hair | 12 | 1 |
| The barking dog | 12 | 2 |
| Around the world with chemistry | 12 | 3 |
| Modelling the double helix | 12 | 4 |
| Machair | 13 | 1 |
| The heat is on | 13 | 3 |
| Molecules in a virtual world | 13 | 4 |
| The Magnificent Seven: magic bullets of 21st century | 14 | 1 |
| Science is art | 14 | 2 |
| Antifreeze | 14 | 3 |
| Magnetic resonance imaging | 14 | 4 |
| Probably the most important reactions in the world | 15 | 2 |
| Camping with chemistry | 15 | 3 |
| Rocks that glow in the dark | 15 | 4 |
| Stimulating chemistry | 16 | 1 |
| Copper on tap? | 16 | 2 |
| Seeing the nanoworld: atomic structures and reaction dynamics | 17 | 2 |
| Getting plastered | 17 | 4 |
| The disguises of carbon | 18 | 1 |
| Hydrogen bonds: holding the world together | 18 | 4 |
| The Martian poles | 19 | 1 |
| Atoms to patterns | 19 | 2 |
| Chemistry in the atmosphere | 19 | 3 |
| Magnetic marvel | 20 | 2 |
| Chemistry of the cosmos | 21 | 3 |
| Decoding skeletal secrets | 22 | 1 |
| Kevlar: miracle material | 22 | 4 |
| Hair-raising chemistry | 23 | 1 |
| X-ray eyes on a molecular world | 25 | 1 |
| Medicinal or murderous: Analysing a Victorian medicine cabinet | 25 | 3 |
| Periodic table updated | 26 | 1 |
| Is every snowflake unique? | 26 | 2 |
| Mass, moles and gas equations | 26 | 3 |
| Know your glassware | 26 | 4 |
| The chemistry behind baking | 27 | 1 |
| Raku pottery: Redox in action | 27 | 3 |
| Saving SS *Great Britain*: Redox in action | 27 | 4 |
| Elements of smartphones | 28 | 1 |
| Flying over fires | 28 | 2 |
| Periodic table completed? | 28 | 3 |
| What shape is my molecule? | 28 | 4 |
| Cave chemistry | 29 | 1 |
| The elephant’s toothpaste experiment | 29 | 2 |
| Do you know your functional groups? | 29 | 3 |
| Acids and their uses | 29 | 4 |
| Bond movies | 30 | 1 |
| The chemistry of pearls | 30 | 2 |
| Polymers in the kitchen | 30 | 3 |
| Weather warning: rain | 30 | 4 |
| Walking inside cells with virtual reality | 31 | 1 |
| How to breath on Mars | 31 | 3 |
| Fire obsidian | 32 | 1 |
| Colourful chemistry | 32 | 4 |
| Breakfast chemistry | 33 | 3 |

**Lab page**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| Recrystallisation - purification of solids | 2 | 5 |
| Thin-layer chromatography TLC | 3 | 1 |
| Making standard solutions | 3 | 2 |
| Using a separating funnel | 3 | 3 |
| Distillation | 3 | 4 |
| Melting point determination | 3 | 5 |
| Measuring pH | 4 | 1 |
| Extracting and studying enzymes | 4 | 2 |
| Measuring volume | 4 | 3 |
| Solvent extraction | 4 | 4 |
| Colorimeters | 4 | 5 |
| Growing crystals | 5 | 1 |
| Safe heating | 5 | 2 |
| Observing | 5 | 3 |
| Electrochemical cells | 5 | 4 |
| Steam distillation | 5 | 5 |
| Volumetric analysis | 6 | 1 |
| Testing for metal ions | 6 | 2 |
| Separating solids from liquids | 6 | 4 |
| Handling gases | 6 | 5 |
| Testing for gases | 7 | 1 |
| Measuring the boiling point of a liquid | 7 | 5 |
| Measuring pH | 8 | 1 |
| What is chromatography? | 8 | 2 |
| Recrystallisation | 8 | 4 |
| Refluxing and distillation | 9 | 2 |
| Calorimetry | 9 | 4 |
| Assessing the risks in practical work | 10 | 1 |
| Oxidation of alcohols | 10 | 4 |
| Experimental error and error analysis | 11 | 2 |
| Making a standard solution | 12 | 2 |
| Colorimetry | 12 | 3 |
| Observing and recording | 13 | 1 |
| Distillation | 14 | 1 |
| Not all indicators are equal | 14 | 2 |
| Thin layer chromatography | 14 | 3 |
| Melting points and boiling points | 14 | 4 |
| Electrode potentials | 15 | 3 |
| How to be a lab success: using QuickFit apparatus | 16 | 1 |
| How to be a lab success: titrations, crystals, separating and mixing | 16 | 4 |
| Identifying an unknown organic compound | 17 | 3 |
| Planning your own experiment | 19 | 3 |
| Heating under reflux | 20 | 2 |
| Infrared spectrometers | 21 | 2 |
| Flame tests and emission spectra | 21 | 4 |
| Recrystallisation | 22 | 2 |
| Determining the yield of a reaction | 22 | 3 |
| Performing the perfect titration | 23 | 2 |
| Steam distillation | 23 | 3 |
| Chromatography | 24 | 3 |
| Extracting caffeine from tea leaves | 25 | 1 |
| How to make skin cream | 25 | 2 |
| Esterification | 25 | 3 |
| Synthesising aspirin | 26 | 1 |
| Nitration of an arene | 26 | 2 |
| Make your own dye | 26 | 3 |
| Volumetric analysis | 27 | 2 |
| Testing turmeric | 27 | 4 |
| Constructing an electrochemical cell | 28 | 4 |
| Analysing limescale remover by acid-base titration | 29 | 2 |
| Performing your own chemistry research | 30 | 1 |
| Titrating white wine | 30 | 3 |
| Iron in white wine | 30 | 4 |
| How did lockdown affect air quality? | 31 | 1 |
| Error and uncertainty | 31 | 4 |
| Chemistry in the kitchen: determining an activation energy | 32 | 3 |
| Extracts from a garden | 32 | 4 |
| Ultraviolet-visible spectroscopy | 33 | 2 |

**Making and doing**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| Model of buckminsterfullerene | 1 | 1 |
| Models of Clay | 1 | 2 |
| Elementary crossword | 1 | 3 |
| Asymmetric crystals of tartaric acid salts | 1 | 4 |
| Spreadsheets for calculations | 1 | 5 |
| Gas testing crossword | 2 | 1 |
| Models of zeolites | 2 | 2 |
| Wordsearch | 2 | 3 |
| Cooking with dough | 2 | 4 |
| Crossword | 3 | 1 |
| Puzzle page | 3 | 2 |
| Solid liquid | 3 | 4 |
| Model of DNA molecule | 3 | 5 |
| Elementary spelling | 4 | 1 |
| History of the Bunsen burner | 4 | 3 |
| Using natural dyes | 4 | 5 |
| Chemical definitions | 5 | 1 |
| Crystal-growing challenge | 5 | 2 |
| The sweet smell of danger | 5 | 3 |
| Quiz | 5 | 4 |
| Chemical dingbats | 5 | 5 |
| Polymer word search | 6 | 1 |
| Anagrams | 6 | 2 |
| Dr Beaker | 6 | 5 |
| Element search | 7 | 1 |
| Chemistry is fun | 7 | 2 |
| Surface tension | 7 | 3 |
| Logical chemistry | 8 | 1 |
| Neils Bohr puzzle | 8 | 2 |
| Gakistuf | 9 | 1 |
| Dr Beaker | 9 | 2 |
| Dr Beaker | 9 | 4 |
| Fun with hydrogels | 10 | 2 |
| 3D models | 10 | 3 |
| Fizz: making sherbet | 11 | 1 |
| Calculating carbon dioxide | 11 | 2 |
| Popcorn explosions | 12 | 1 |
| Bubbles | 12 | 3 |
| DIY DNA | 12 | 4 |
| Chemical dingbats | 14 | 1 |
| More chemical dingbats | 14 | 2 |
| Inkvestigation | 15 | 1 |
| Chemical crossword | 15 | 2 |
| Chemical sudoku | 15 | 3 |
| Elemental sudoku | 15 | 4 |
| Poetic chemistry | 16 | 1 |
| Elementary crossword | 17 | 1 |
| Trace elements | 17 | 2 |
| Radioactive sudoku | 17 | 3 |
| Hydrogen bonds: experiments to try at home | 18 | 4 |
| Wonder in carbon land: build your own bucky balls | 19 | 2 |
| Numbercross | 20 | 1 |
| Transition metal riddles | 20 | 3 |
| Build your own spectroscope | 21 | 4 |
| Summing up fertilisers | 22 | 1 |
| Chemical conundrum | 23 | 1 |
| Elementary clues | 24 | 1 |
| Chemword | 24 | 2 |
| Isomagram | 25 | 1 |
| Elemental acrostic | 25 | 2 |
| Who said that? | 25 | 3 |
| Molecular crossword | 26 | 1 |
| Chemword | 26 | 2 |
| Chemical vocabulary | 27 | 2 |
| Does warm water freeze faster than cold water? | 27 | 3 |
| Chemical conundrum | 27 | 4 |
| Systematic names | 28 | 3 |
| Scrambled scientists | 29 | 1 |
| Chemistry in knots | 29 | 1 |
| Mystery metal | 29 | 3 |
| Red cabbage indicators | 29 | 3 |
| Chemical crossword | 29 | 4 |
| Crossword chemistry | 30 | 2 |
| Element Hunt | 30 | 4 |
| Chemistry crossword | 31 | 2 |
| Crossword chemistry | 31 | 3 |
| Revision crossword | 31 | 4 |
| Chemistry crossword | 32 | 1 |
| Chemistry crossword | 32 | 2 |
| Chemistry crossword | 32 | 3 |
| Chemistry crossword | 32 | 4 |
| Chemistry crossword | 33 | 1 |
| Chemistry crossword | 33 | 2 |
| Chemistry crossword | 33 | 3 |
| Chemistry crossword | 33 | 4 |

**People / All in a day’s work / Careers in chemistry**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Job** | **Vol.** | **Issue** |
| Hart, Judith | Freelance Journalist | 1 | 3 |
| Knight, Barry | Ancient Monument Laboratories (English Heritage) | 1 | 4 |
| Gregory, Peter | Senior Scientist (ICI Specialty Colours Group) | 2 | 3 |
| Hamer, Pam | Forensic Scientist | 2 | 5 |
| Senior, Clare | Analytical Chemist in Packaging Research | 3 | 4 |
| Crawley, Frank | Chemical Engineer (ICI, BP), Authority on safety of industrial processes | 4 | 3 |
| Tarasova, Natalia | Radiation Chemist, Professor of Industrial Ecology, Mendeleev University of Chemical Technology, Moscow | 4 | 4 |
| Hutchinson, Ann | Process Chemist (Rhone-Poulenc Agriculture) | 5 | 1 |
| Sutton, Jane | Press and Publicity Officer (Royal Society of Chemistry) | 5 | 2 |
| Osman, Robert | Plant Manager, Pigment Dispersion Plant, Yorkshire Chemicals | 5 | 3 |
| Owen, Nick | Innovations Marketing Manager, Hickson & Welch | 5 | 4 |
| Hewitt, Chris | Brand Manager, Aldrich UK | 5 | 5 |
| Hazel, Nick | Issues Manager, BP Chemicals | 6 | 1 |
| Hodgson, Anne | University Chemistry Department | 6 | 3 |
| Levitt, Melissa | Commissioning Editor | 6 | 5 |
| Hockley, Sian | Patent Agent | 7 | 5 |
| Julie Hall | Antarctic Research | 8 | 2 |
| Louise Scarry | Granular Detergent Technology | 8 | 5 |
| O'Brien, Peter | University Lecturer | 9 | 3 |
| Walker, Karen | Agrochemical Registration Specialist | 9 | 5 |
| Tinkler, Suzanne | Confectionery product developer | 11 | 4 |
| Wevill, Dave | Antarctic Survey | 13 | 2 |
| Barnham, Rachel | Forensic Scientist | 14 | 3 |
| Macdonald, Anthony | Biomedical researcher | 18 | 4 |
| Hardy, Jeff | UK Energy Research Centre | 19 | 4 |
| Davison, Rachael | Cosmetic scientist | 29 | 2 |
| Gomes Chagas, Luciana | Bbattery Technologies Researcher | 30 | 2 |
| Georgina Cuckston | Science communication manager, Mars Global Food Safety Centre (GFSC) | 31 | 2 |
| Hodgson, Anne | Chemistry: your future | 33 | 1 |

**Project page**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| Decomposing hydrogen peroxide | 5 | 1 |
| What's in water? | 5 | 2 |
| The reactions of metals with acids | 5 | 3 |
| Making light of Project work | 5 | 4 |
| There's more to Vitamin C than Brussels | 5 | 5 |
| Reactions that don't add up | 6 | 1 |
| Clock reactions | 6 | 2 |
| Aspirin | 6 | 3 |
| Investigating enzymes | 6 | 4 |
| How accurate are titrations? | 7 | 1 |
| What’s in wine | 7 | 3 |
| Ion exchange resins | 7 | 4 |
| Oscillating reactions | 8 | 3 |
| Adsorption and inclusion | 8 | 4 |
| Concentration of copper ions | 9 | 1 |
| Dyes and dyeing | 10 | 1 |
| A Reaction that speeds itself up | 11 | 3 |
| Anyone for spaghetti and peas? | 11 | 4 |
| How quickly does bleach deteriorate? | 16 | 3 |

**Remember remember**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| Using mnemonic methods | 8 | 1 |
| The story system | 8 | 2 |
| The loci system | 8 | 3 |
| The peg method | 8 | 4 |

**Research team**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| Are you part of a research team? | 8 | 1 |
| Naphthazarin, PDT and the fight against cancer | 8 | 2 |
| The problem with PET | 8 | 4 |
| Are you part of a research team? | 9 | 1 |
| Nitric oxide as a synthetic reagent | 9 | 5 |
| Pushing back the frontiers… | 10 | 1 |

**Revision note**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| Bonding between molecules | 1 | 1 |
| Spectroscopy | 1 | 2 |
| Electrolysis | 1 | 3 |
| Shapes of molecules and electron pair repulsion theory | 1 | 4 |
| Interpreting mass spectra | 1 | 5 |
| What makes a reaction go? | 2 | 1 |
| Redox (and oxidation numbers) | 2 | 2 |
| Energy profiles | 2 | 3 |
| An overview of organic reactions | 2 | 4 |
| Acids | 2 | 5 |
| The Periodic Table | 3 | 1 |
| Testing for functional groups | 3 | 2 |
| A new angle on bonding | 3 | 3 |
| Solidification of solutions | 3 | 4 |
| Melting point determination | 3 | 5 |
| The transition metals | 4 | 1 |
| Naming aliphatic organic compounds | 4 | 2 |
| Keeping track of energy changes | 4 | 5 |
| Drawing organic compounds | 5 | 1 |
| Born-Haber cycles and lattice energies | 5 | 2 |
| Melting and boiling points | 5 | 3 |
| Keeping things short | 5 | 4 |
| Acids & bases | 5 | 5 |
| Acid-base indicators and buffer solutions | 6 | 1 |
| Ultraviolet and visible spectra | 6 | 2 |
| Kinetics | 6 | 4 |
| Group 4 | 6 | 5 |
| Identifying gasses | 7 | 1 |
| Intermolecular bonds | 7 | 2 |
| Isomerism | 7 | 3 |
| Halogens | 8 | 1 |
| Spider diagrams | 8 | 2 |
| The alkanes | 8 | 3 |
| Changing state | 9 | 1 |
| Exam tactics | 9 | 2 |
| Transition metal complexes I | 9 | 3 |
| Transition metal complexes II | 9 | 4 |
| Organic synthetic pathways | 9 | 5 |
| What is isomerism? | 10 | 3 |
| Amines | 10 | 4 |
| Gases Part 1 | 11 | 1 |
| Calculations involving masses | 11 | 2 |
| Gases Part 2 | 11 | 3 |
| Trends in period 3 elements | 11 | 4 |
| The elements in group 2 | 12 | 2 |
| Titrations | 12 | 3 |
| Nucleophiles | 12 | 4 |
| Moles – the basics | 13 | 1 |
| Calculating pH | 13 | 2 |
| Carboxylic acids | 13 | 3 |
| Establishing a rate equation | 14 | 2 |
| Aliphatic organic compounds | 15 | 1 |
| Summary of reactions for benzene/aromatic compounds | 15 | 2 |
| From creaking joints to saving a steamship | 15 | 3 |
| Bonding: sticking atoms together | 16 | 1 |
| Interpreting infrared spectra | 16 | 2 |
| Classifying organic reactions | 16 | 3 |
| Trends in ionisation energy | 17 | 3 |
| Acids and bases: a whistle-stop tour | 18 | 2 |
| Acids and bases: developing ideas further | 18 | 3 |
| Oxides of carbon | 20 | 1 |
| Solid foundations: part 1 | 21 | 3 |
| Solid foundations: part 2 | 21 | 4 |
| Tackling stretch and challenge questions | 22 | 4 |
| Copper sulfate and ammonia: stretch and challenge question | 23 | 4 |
| Understanding NMR spectra | 24 | 4 |
| Nucleophilic substitution | 26 | 3 |
| Electrophilic substitution of aromatic rings | 26 | 4 |
| Know your units | 27 | 3 |
| The continuum of bonding | 28 | 1 |
| Disentangling polarity | 28 | 2 |
| Maxwell-Boltzmann distribution curves | 29 | 4 |
| Types of isomerism | 30 | 1 |
| The versatility of alcohol | 30 | 2 |
| Substitution reactions | 30 | 3 |
| Substitution and aliphatic compounds | 30 | 4 |
| Buffers | 31 | 1 |
| Mastering units | 31 | 4 |
| Electrophilic addition reactions | 32 | 1 |
| Equilibrium | 33 | 4 |

**Scientists of substance**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| Mendeleev, creator of the chemists’ logo | 13 | 1 |
| John Newlands | 13 | 2 |
| Harry Moseley | 13 | 3 |
| Fritz Haber | 13 | 4 |
| John Priestly | 14 | 1 |
| Sir William Ramsay | 14 | 2 |
| Sir Humphry Davy | 14 | 4 |
| Linus Pauling | 15 | 1 |
| Thomas Midgely | 15 | 2 |
| Gilbert N. Lewis: his acids and bases | 15 | 3 |
| Glenn T. Seaborg: creator of elements | 15 | 4 |
| Lise Meitner: radiochemist, physicist and co-discoverer of nuclear fission | 16 | 1 |
| Ida Tacke-Noddack: co-discoverer of rhenium and nuclear fission | 16 | 2 |
| Rosalind Franklin: physical chemist, X-ray crystallographer and DNA pioneer | 16 | 3 |
| Marguerite Perey: discoverer of francium | 16 | 4 |
| Organic growth from Deutsche Chemiker | 17 | 1 |
| More organic growth from Deutsche Chemiker: Liebig and Wőhler | 17 | 2 |
| Seeds of structural organic chemistry: August Kekulé | 17 | 3 |
| Adolf von Baeyer and Victor Meyer | 17 | 4 |
| Avogadro: count and counting chemist | 18 | 1 |
| John Dalton: Quaker scientist and law maker | 18 | 2 |
| van der Waals: famous for recognising feeble forces | 18 | 3 |
| Michael Faraday | 18 | 4 |
| Dorothy Crowfoot Hodgkin: great discoveries in X-ray crystallography | 19 | 4 |
| Carothers: inventor of nylon | 20 | 1 |
| Kwolek: creator of Kevlar | 20 | 2 |
| Benerito: the chemist who banished ironing | 20 | 3 |
| Marie Curie: probing the atom | 21 | 2 |
| The fascinating Fenton reaction | 22 | 1 |
| Rachel Louise Carson: Environmental champion | 27 | 2 |
| George Washington Carver: pioneering agricultural scientist | 31 | 3 |

**Substances**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| Tin and lead | 4 | 1 |
| Iodine | 4 | 2 |
| Methyl mercaptan | 4 | 3 |
| Sodium carbonate | 4 | 4 |
| Argon - in the spotlight | 4 | 5 |
| Helium | 5 | 1 |
| Platinum | 5 | 2 |
| Nitric Acid | 5 | 3 |
| Propanone | 5 | 4 |
| Iodine | 5 | 5 |
| Hydrogen peroxide | 6 | 1 |
| Alumina | 6 | 2 |
| Silica | 6 | 3 |
| Nitric oxide | 6 | 4 |
| Mixed oxides | 6 | 5 |
| Chlorides | 7 | 1 |
| Potassium chloride | 7 | 2 |
| Aluminium chloride | 7 | 3 |
| Cl4 and SiCl4+ | 7 | 4 |
| HCl | 7 | 5 |
| Butane | 8 | 3 |
| Ethanoic acid | 8 | 4 |
| Phenol | 8 | 5 |
| Aluminium | 9 | 2 |
| Caesium | 9 | 3 |
| Sulfur | 9 | 4 |
| Cyanides | 10 | 1 |
| Chlorine | 10 | 2 |
| A bitter isomerisation | 10 | 3 |
| Carbon monoxide | 10 | 4 |
| Strontium | 11 | 1 |
| Gallium | 11 | 2 |
| Selenium | 11 | 3 |
| Hydrogen | 12 | 1 |
| Chromium | 12 | 3 |
| Bromine | 12 | 4 |
| Hydrogen sulfide | 13 | 1 |
| Titanium | 13 | 3 |
| Nitrogen oxides | 14 | 1 |
| Ozone | 14 | 2 |
| Carbohydrates | 14 | 4 |
| Carboxylic acids | 15 | 1 |
| Hydrogen: alkali metal or halogen? | 15 | 2 |
| Lithium | 15 | 3 |
| Supercritical carbon dioxide | 16 | 3 |
| Silicones and silanes | 16 | 4 |
| Platinum: not just for jewellery | 17 | 4 |
| The fight against bacteria: every cloud has a silver lining | 18 | 1 |
| Deadly beauty | 18 | 3 |
| Finding a fix | 19 | 1 |
| Graphene | 19 | 2 |
| Vanadium | 19 | 4 |
| Calcium carbonate | 20 | 3 |
| Water water everywhere | 20 | 4 |
| Iridium: life-saving transition element | 21 | 2 |
| Cocaine: atoms of addiction | 21 | 3 |
| Aerogel: ‘frozen smoke’ | 21 | 4 |
| Tetrodotoxin: famously deadly poison | 22 | 2 |
| All things ice | 22 | 3 |
| Iodine in medicine | 23 | 1 |
| Magnesium | 23 | 3 |
| Looking into glass | 23 | 4 |
| Hydrogen cyanide: Poison and precursor | 25 | 2 |
| Barium | 25 | 4 |
| Analgesics | 27 | 1 |
| Turmeric: Medicinal applications | 27 | 4 |
| Sugar: A bittersweet tale? | 29 | 4 |
| The state of water | 30 | 1 |
| Zinc | 30 | 1 |
| Arsenic: Detecting invisible poisons | 30 | 2 |
| Sugar-coated cells | 30 | 4 |
| Oxygen | 31 | 2 |
| Terrific Tetrapyrroles | 31 | 4 |
| Methanol: the future of fuel cells? | 32 | 1 |
| Producing polyurethanes | 32 | 3 |
| Do we need fluoride in our water | 32 | 4 |
| The radium craze | 33 | 2 |
| Sweeter than sugar: what are artificial sweeteners? | 33 | 4 |

**Top tips**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| Getting the language right | 7 | 1 |
| Oxidation states | 7 | 2 |
| The shapes of molecules | 7 | 3 |
| Calculations involving amounts | 8 | 1 |
| Identifying reactions (1) | 8 | 4 |
| Identifying reactions (2) | 8 | 5 |
| Calculating yields in chemical reactions | 9 | 2 |
| Drawing enthalpy cycles | 9 | 3 |
| Interpreting mass spectra | 10 | 1 |
| Interpreting NMR spectra | 10 | 2 |
| Writing structural isomers using stick formulae | 10 | 3 |
| Tackling chemical calculations | 10 | 4 |
| Know your Ks | 11 | 4 |
| Understanding electrode potentials | 12 | 1 |
| Using electrode potentials | 12 | 2 |
| Balancing equations | 12 | 3 |
| Using oxidation states | 12 | 4 |
| Van der Waals Forces | 13 | 1 |
| Classifying organic reactions | 13 | 2 |
| Measuring the rate of a chemical reaction | 14 | 1 |
| Born Haber Cycles | 14 | 4 |
| What’s in a word? | 15 | 1 |
| Watch your language! | 15 | 2 |
| Hess’s Law | 15 | 4 |
| Guidelines for drawing organic structures | 16 | 1 |
| Shapes in inorganic chemistry | 16 | 2 |
| Drawing lab diagrams | 16 | 4 |
| Representing chemical reactions | 17 | 1 |
| Drawing reaction mechanisms | 18 | 1 |
| Drawing radical reaction mechanisms | 18 | 2 |
| Atom economy: avoiding chemical waste | 19 | 2 |
| Naming esters | 19 | 3 |
| Tracking your degree application | 19 | 4 |
| Making use of electrode potentials | 22 | 3 |
| Hess cycles and the MASK check | 24 | 2 |
| Amino acids in chemistry | 25 | 2 |
| Succeeding in chemistry without A-level maths | 25 | 4 |
| Dealing with significant figures | 26 | 1 |
| Esterification mechanisms | 27 | 3 |
| Naming (*R*/*S*) isomers | 29 | 3 |
| How to draw enantiomers | 30 | 1 |
| Organic structures and mechanisms | 30 | 3 |
| Changing units | 32 | 2 |

**Wonders of chemistry**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| Liquid breathing | 11 | 1 |
| Paved with titanium | 11 | 2 |
| Saving reefs from grief | 11 | 3 |
| Self-healing plastic | 11 | 4 |
| Windows that clean themselves | 12 | 2 |
| Twenty-first century batteries | 12 | 4 |
| Seeing with selenium | 13 | 2 |
| Solution to a sticky problem: non-drip ice-lollies | 13 | 3 |
| Tougher than a speeding bullet | 13 | 4 |
| The future’s bright, the future’s …tritium | 14 | 2 |
| Luminol: shedding the light on ‘hidden’ evidence | 14 | 3 |
| Potty power: microbial fuel cells | 14 | 4 |
| Cracking concrete heals itself | 21 | 1 |
| Molybdenite Valley? The search for new semiconductors | 22 | 2 |
| Won’t you step into my parlour…spider silk | 23 | 2 |
| Molecules of revision | 23 | 4 |
| Graphene and carbon nanotubes | 24 | 1 |
| The jeans that eat pollution | 24 | 2 |
| Lyotropic liquid crystals: essential for life | 24 | 3 |
| X-rays reveal a lost treasure | 25 | 2 |
| Solar power: nature does it better | 28 | 1 |
| Elements old and new | 28 | 3 |
| Chameleon colour changes | 29 | 2 |
| Recharging the batteries | 29 | 3 |
| Plants that clean the air | 30 | 1 |
| Growing living bricks | 30 | 4 |
| Clearer car windscreens | 31 | 2 |
| Supercritical fluids | 31 | 3 |
| Investigating an ancient wine trade | 31 | 4 |
| Sponge-inspired chemistry | 32 | 1 |
| Cows, isotopes and climate change | 32 | 2 |
| Gut feeling: how bacteria in the intestines affect mental health | 33 | 1 |
| The science of hair dye | 33 | 4 |

**Worth reading**

|  |  |  |
| --- | --- | --- |
| **Title** | **Vol.** | **Issue** |
| Molecules at an Exhibition | 8 | 4 |
| Nitroglycerine | 9 | 2 |
| The Shocking History of Phosphorus: a biography of the Devil’s element | 10 | 2 |
| The X-ray detective | 11 | 1 |
| Science, not art: ten scientists’ diaries | 14 | 1 |
| Uncle Tungsten | 14 | 4 |
| Better Looking, Better Living, Better Loving: How chemistry can help you achieve life’s goals | 17 | 2 |
| Eurekas and Euphorias: The Oxford Book of Scientific Anecdotes | 18 | 3 |
| Max Perutz and the Secret of Life | 18 | 4 |
| Chemistry3:introducing inorganic, organic and physical chemistry | 19 | 2 |
| A Healthy, Wealthy, Sustainable World | 20 | 4 |
| The Elements – a very short introduction | 21 | 1 |
| Nature’s Building Blocks (2nd edition) | 21 | 2 |
| Molecules with Silly or Unusual Names | 21 | 4 |
| Breverton’s Encyclopedia of Inventions | 22 | 2 |
| 30-Second Elements | 22 | 3 |
| Every Molecule Tells a Story | 24 | 2 |
| Molecules That Amaze Us | 25 | 3 |
| The Sun and moons | 27 | 1 |
| The Disappearing Spoon | 28 | 1 |
| Periodic Tales: the Curious Lives of the Elements | 28 | 3 |
| Reactions: the Private Life of Atoms | 28 | 4 |
| Discovering Cosmetic Science | 31 | 1 |
| *30 Tutorials in Chemistry* by Wai Shun Lau | 33 | 3 |

**Themed articles (one-off series)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Title** |  | **Vol.** | **Issue** |
| Chemistry and the environment | Nitrogen and phosphorus in estuaries | 7 | 1 |
|  | Mountains of waste | 7 | 2 |
|  | SO2 and acid rain | 7 | 3 |
|  | Climate change and CO2 | 7 | 4 |
|  | Tracing oil spills at sea | 7 | 5 |
| Chemistry and health | Quinine – one of the great molecules | 8 | 1 |
|  | Metals in medicine | 8 | 2 |
|  | Body parts from the polymer lab | 8 | 3 |
|  | The discovery of Ventolin | 8 | 4 |
| Green chemistry | Catalysts | 9 | 1 |
|  | Green beans? | 9 | 2 |
|  | Environmental solutions | 9 | 3 |
|  | Plants of the future | 9 | 4 |
|  | Atom efficiency and catalysis | 9 | 5 |
| Chemistry in space | DIBs: a great unsolved mystery | 10 | 1 |
|  | What a dusty universe! | 10 | 2 |
|  | Space: the first and last great brewery | 10 | 3 |
|  | Beagle 2: looking to explore a blurred vision of life on Mars | 10 | 4 |
| A taste for chemistry | Cool chemistry: what’s in an ice cream? | 11 | 1 |
|  | Cooked to a turn! Non-enzymic browning in food | 11 | 2 |
|  | A root to white sugar: how to turn a plant into something sweet | 11 | 3 |
|  | Understanding cocoa flavour | 11 | 4 |
| Chemistry everywhere | Curly locks | 12 | 1 |
|  | Roast beef and ashes to vegetarian shampoo | 12 | 2 |
|  | All you should know about dough | 12 | 3 |
|  | The ultra-blue: the story of ultramarine | 12 | 4 |
| Forensic chemistry | The chemistry of fingerprints | 13 | 1 |
|  | Resurrecting the past | 13 | 2 |
|  | Behind the scenes at the National Gallery | 13 | 3 |
|  | Drugs on money | 13 | 4 |
| Fuelling the future | Electricity generation | 14 | 1 |
|  | Electricity, the next generation | 14 | 2 |
|  | Driving towards a cleaner future | 14 | 3 |
|  | Global impact of fuels | 14 | 4 |
| Sporting chemistry | Performance fuel for people | 15 | 1 |
|  | Chemistry has the right fibre for sporting glory | 15 | 2 |
|  | Designer magic sponges | 15 | 3 |
|  | Catching the cheats: detecting drugs in sport | 15 | 4 |
| Nanotechnology | Nanochemistry: delivering new medicines? | 16 | 1 |
|  | Nanotechnologists inspired by nature: building new model enzymes | 16 | 2 |
|  | Liquid crystals: the fourth state of matter | 16 | 3 |
|  | When superconductors get crabby | 16 | 4 |
| Chemistry and climate | Natural climate variability | 17 | 1 |
|  | The Antarctic ozone hole | 17 | 2 |
|  | The benefits of bracing sea air | 17 | 3 |
|  | The chemistry of indoor air | 17 | 4 |
| Medicinal chemistry | Precious medicines | 18 | 1 |
|  | Don’t hold your breath: the diagnostic potential of breath analysis | 18 | 2 |
|  | Curing cancer with chemistry | 18 | 3 |
|  | Salbutamol: saving your breath | 18 | 4 |
| Design for the future | The polymer predicament: making plastics from plants | 19 | 1 |
|  | Biocatalysis | 19 | 2 |
|  | Lab on a chip | 19 | 3 |
|  | LEDs: light fantastic | 19 | 4 |
| Out of thin air | From volcanoes to sea salt: atmospheric sulfur | 20 | 1 |
|  | Atmospheric nitrogen | 20 | 2 |
|  | Poison in the air: atmospheric carbon monoxide | 20 | 3 |
|  | Do ants destroy the ozone layer? | 20 | 4 |
| What’s your poison? | Cuppa chemistry | 21 | 1 |
|  | Chemistry of wine | 21 | 2 |
|  | Biochemistry, brewing and beery scientists | 21 | 3 |
|  | A mug of coffee and chemistry | 21 | 4 |
| Lifestyle chemistry | Chemistry’s calling: mobile phones and touchscreen technology | 22 | 1 |
|  | Curried chemistry | 22 | 2 |
|  | Two in one: the chemistry of shampoo and conditioner | 22 | 3 |
|  | Shades of chemistry | 22 | 4 |
| Greener and cleaner | Artificial photosynthesis: putting sunshine in the tank | 23 | 1 |
|  | Reclaiming plastic waste | 23 | 2 |
|  | What can we make from carbon dioxide? | 23 | 3 |
|  | Biocatalysis in biosolvents | 23 | 4 |
| Chemistry in medicine | Developing and delivering drugs | 24 | 1 |
|  | Mind-numbing drugs | 24 | 2 |
|  | Fighting mental illness | 24 | 3 |
|  | Viral chemistry | 24 | 4 |
| 25 years of... | Gel chemistry: From jellies to 3D printing | 25 | 1 |
|  | Retrosynthesis | 25 | 2 |
|  | Carbene chemistry | 25 | 3 |
|  | FT-NMR | 25 | 4 |
| Energy and efficiency | The chemistry of LEDs | 26 | 1 |
|  | Shining a light on solar energy | 26 | 2 |
|  | Batteries required: Advances in energy storage | 26 | 3 |
|  | Fuel from sunshine | 26 | 4 |
| Wonder bugs | Landmine-detecting bacteria | 27 | 1 |
|  | Plastic-eating bacteria | 27 | 2 |
|  | Microbial medicine factories | 27 | 3 |
|  | New fuels from nature | 27 | 4 |
| Animal chemistry | Bees, honey and venom | 28 | 1 |
|  | Frogs and toads | 28 | 2 |
|  | Cats and dogs | 28 | 3 |
|  | Spiders | 28 | 4 |
| A brief history of... | Atomic structure: Part 1 | 29 | 1 |
|  | Atomic structure: Part 2 | 29 | 2 |
|  | The chemistry of nuclear energy | 29 | 4 |