



## Chemistry

“Satisfaction of one's curiosity is one of the greatest sources of happiness in life.”  
Linus Pauling, Nobel Laureate in Chemistry, 1954.

All boys study Chemistry to GCSE level. The Department seeks to further the enjoyment of Chemistry and to encourage excellence at all levels.

Science is taught throughout the School. In the Upper School the boys' experience of Science is expanded into three separate subjects and all aspects of Key Stage Three Chemistry are covered in Year 9. Years 10 and 11 cover the GCSE Syllabus; all boys study the science of materials and their properties: the essence of Chemistry. Most students take three separate Science subjects at GCSE. Results in Chemistry are excellent, 88% obtaining A\* or A grades in 2009, and 90% of chemistry candidates achieving these grades over the last five years. Less scientifically orientated boys can follow the Science and Additional Science GCSEs, but again the subjects are taught separately. The Department is excited to be offering the Edexcel IGCSE for first examination in 2011: our current Year 9 will be the first cohort.

There are many reasons to study Chemistry in the Sixth Form. Perhaps it is your favourite subject, perhaps it is part of a complementary combination of subjects and perhaps it serves as a means to an end. At Bedford School, Chemistry is taught in a way that allows extensive experimentation so that you too can experience the wonder of discovering how substances interact for the first time, and our results bear out the wisdom of this approach.

Chemistry is often described as being the “central science” and should be considered as complementary to both biology and physics.

### **Courses available:**

OCR AS Chemistry (H034) (8 periods per week, L6)

OCR A2 Chemistry (H434) (9 periods per week, U6)

IB SL Chemistry (4 periods per week, IB1 and IB2)

IB HL Chemistry (6 periods per week, IB1 and IB2)

### **AS and A2 Chemistry:**

These are modular courses, with Unit exams sat in January and June of each year of study. At each level, in addition to the two written papers, there is an internally assessed Unit which is carried out in the form of assessed practicals during normal class time. These internally assessed Units count 20% at both AS and A2. It is possible to resit the written papers in subsequent exam sessions, but we find that the fewer of these that are necessary, the better. The two year course provides a

rigorous preparation for University study of the subject and other related disciplines such as medicine.

### **IB Chemistry:**

These are linear courses, with written exams in the May of the second year of study. At both Standard and Higher Levels, 24% of the final mark is set aside for internal assessment, which takes a minimum of 40 (SL) or 60 (HL) hours, and therefore represents a large commitment. Chemistry is offered in both Groups 4 and 6 at Bedford School and it is therefore possible to study it and another science within our curriculum. The SL course should not be viewed as preparation for University study in science subjects, as it presents a broad understanding of many topics rather than depth. This comes in the extra material studied at HL, making this course appropriate as the basis for further study.

### **Our expectations of our students:**

Chemistry is a subject that lends itself to independent learning. In a way, laboratory work is exactly that, because the pace of discovery and the interpretation of observations made are entirely student-driven, but it is still an activity directed by the teacher. Each of our courses will be delivered in their entirety within the lesson time available, but it is vital that students work beyond that framework, and we have put in place several opportunities to do so. At the most basic level, prep is set to test the understanding picked up in class, to diagnose problems as they occur, to analyse and evaluate practical work, and to direct research. However, students should realise that in the competitive marketplace that is the modern university entrance process, a public school boy will be expected to be more than just good at a subject. It is necessary to be able to demonstrate a real interest and there is time outside lessons to prove that.

To help you in this process, you are encouraged to attend as many of the Harpur Science Forum lectures as possible (a lecture series hosted by Bedford School and Dame Alice Harpur School); become a committee member, take notes, ask questions and engage with the speakers, for you may have a university interviewer who will ask you about them. In addition, we encourage you to take up membership of [The Royal Institution](#) and if possible attend black tie Friday Evening Discourses. [The Royal Society](#) holds free evening science lectures and runs excellent [Summer Science Exhibitions](#). Students should enter the [Peterhouse: Kelvin Science Prize](#) and the [National Institute for Medical Research essay prize](#). Those who demonstrate a real aptitude for Chemistry are invited to enter the British Chemistry Olympiad; the elite from this are selected to represent the UK at the International Chemistry Olympiad. We also run the challenging Talalay Science Presentation competition, the winner of which receives a substantial financial award.

Oxbridge students are expected to make time to submit essays and give presentations on topics of their own choice. They must read extensively beyond the syllabus and ensure they are able to converse fluently on the recent developments described in journals e.g. New Scientist (the School Library provides a free online version), and Chemistry World, the journal of the [Royal Society of Chemistry](#). Oxbridge preparation is a process in which highly motivated and talented students develop their knowledge and skills independently, with guidance from the [Head of Department](#) who is also the Director of UCAS and Higher Education, and the [Head of Science](#).

There are two dedicated post-16 laboratories within the Department, and four GCSE labs, with a library, workroom and preparation room. The Science Department has its own Computer laboratories, and ICT is used extensively in teaching. Many resources and CD-ROMs are available to boys on the School intranet. There is a Sixth Form Science Forum, in conjunction with the other Harpur Trust Schools, which holds meetings and lectures with outside speakers and visits are made to appropriate events outside the School.

**The Chemistry Staff are very experienced and play a full part in the life of the School. There are seven full time teaching staff and three technicians:**

**Mr I A Sheldon** is Head of Department and has held the post since 2004. An Old Bedfordian and a graduate of Oxford University, he joined the Department in 2003. He is also Director of UCAS and Higher Education.

**Mr C Baker** is a graduate of Manchester University and was runner-up in the Science Teacher of the Year Competition in 1998. He is also Vice Master.

**Dr A J Crowe** is the Housemaster of Bedford School Study Centre, and has been in post since 1973. He holds degrees from Aston University.

**Mr C W Duckworth** has been in post since 1988 and is a Liverpool University graduate. He is a Team Leader for Examiners for the International Baccalaureate.

**Dr B Johnson** has been in post since September 2007 and is a graduate of Cambridge University.

**Mr I H Latif** joined the staff as Deputy Head (Academic) in September 2008. His degree is from King's College London and he lectures regularly on behalf of the Royal Society of Chemistry.

**Dr W G Suthers** has been in post since September 2006. He graduated from Durham University, and is the new Master in Charge of Rowing at the school.

**Mrs. Stella Tetsola, Mrs. Christine Foat and Mrs Galina Hollands** are the Departmental Technicians.

**For further information, please contact : [isheldon@bedfordschool.org.uk](mailto:isheldon@bedfordschool.org.uk)**