**The Science Faculty**

The science department embodies the school’s ambitions for students that they can fulfil their potential each and every day.

The science department aims to introduce students to the activities and methods of science building a deep, long lasting passion for science through:

* practical work;
* problem solving;
* scientific communication;
* critical analysis;
* appreciation of social and industrial context;
* an ethical understanding of the environment.

**The goal of the science department is for all students to:**

* experience a range of different teaching and appropriate learning strategies;
* have the opportunity to develop through working individually or in groups;
* experience experimental work to develop their own practical skills;
* have the opportunity to realise their full potential in science;
* to progress at a level which is appropriate to their development;
* be exposed to learning activities which are stimulating, challenging and enjoyable;
* develop due regard for the safety of themselves and others.

**Organisation of the department**

The science department has seven multi-discipline science laboratories. There is one multi-discipline preparation room to service the laboratories. The planned expansion programme for the school should be completed by September 2020. Once the new building is opened, the science department will benefit from two new physics laboratories, an extra preparation room and also a dark room.

**CASE**

The school has been involved with the CASE (cognitive acceleration through science education) project since 2011. The headteacher is an expert tutor and the approach is embedded in the Year 7 and 8 curriculum.

**Personnel**

There is a School Director of Science, Curriculum Leader and TLR positions for subject leads and/or key stages. The department has two full-time laboratory technicians.

**Teaching**

**Key Stage 3**

Full-time science teachers, when appointed, are expected to teach KS3 science, which develop abstract thinking. The department is heavily involved in the development of CASE across the KS3 science curriculum, which includes:

* An introduction which sets the scene (concrete preparation);
* A puzzle or challenge which needs to be solved (cognitive conflict);
* Group-work and discussion where pupils share ideas for solutions (social construction);
* Learners consciously explain the thinking which gave the answer (metacognition);
* Learners making links to everyday applications of the ideas discussed (bridging).

To ensure students are fully prepared for GCSE, the KS3 schemes of work are currently being written to adapt to the new GCSE specification. The progress of students is recorded on a flight-path model and targeted intervention is carried out to enable students to stay on track to meet their end of KS4 targets.

KS3 science also runs an array of clubs and projects to engender a life-long passion in science.

**Key Stage 4**

Teachers will teach their subject specialism plus their second subject specialism from Year 10 to Year 11. There are six combined science groups and one triple science group in each year. The department follows AQA Trilogy as its combined course.

The department has been at the forefront of IOP’s Girls in Physics project for the past three years. Students have conducted their own original research and presented their findings at the National School’s CERN Symposium. Addressing the gender imbalance in science is an area the whole department is passionate about.

KS4 is very much the stepping stone for students to continue their scientific studies in KS5. A great deal of work has been done by the department to ensure the model of formative and summative assessment in KS4 is robust and meaningful and, most importantly, enables all students to maximise their potential.

**Key Stage 5**

Teachers will teach their subject specialism in Year 12 to Year 13.

Science in KS5 is a very popular choice with students. There are normally two biology, two chemistry and one physics group in Years 12 and 13; all follow the respective AQA specifications.

Students studying A-level science at Ruislip High have enjoyed great success in continuing their science education at university. The department runs residential A-level trips in biology and physics on a yearly basis. This year the CERN trip involved 25 students and three members of staff. In 2019 the biology department will be looking at turtle conservation in Cape Verde and, in 2020, the physics department is planning a trip to NASA.