

PHYSICS

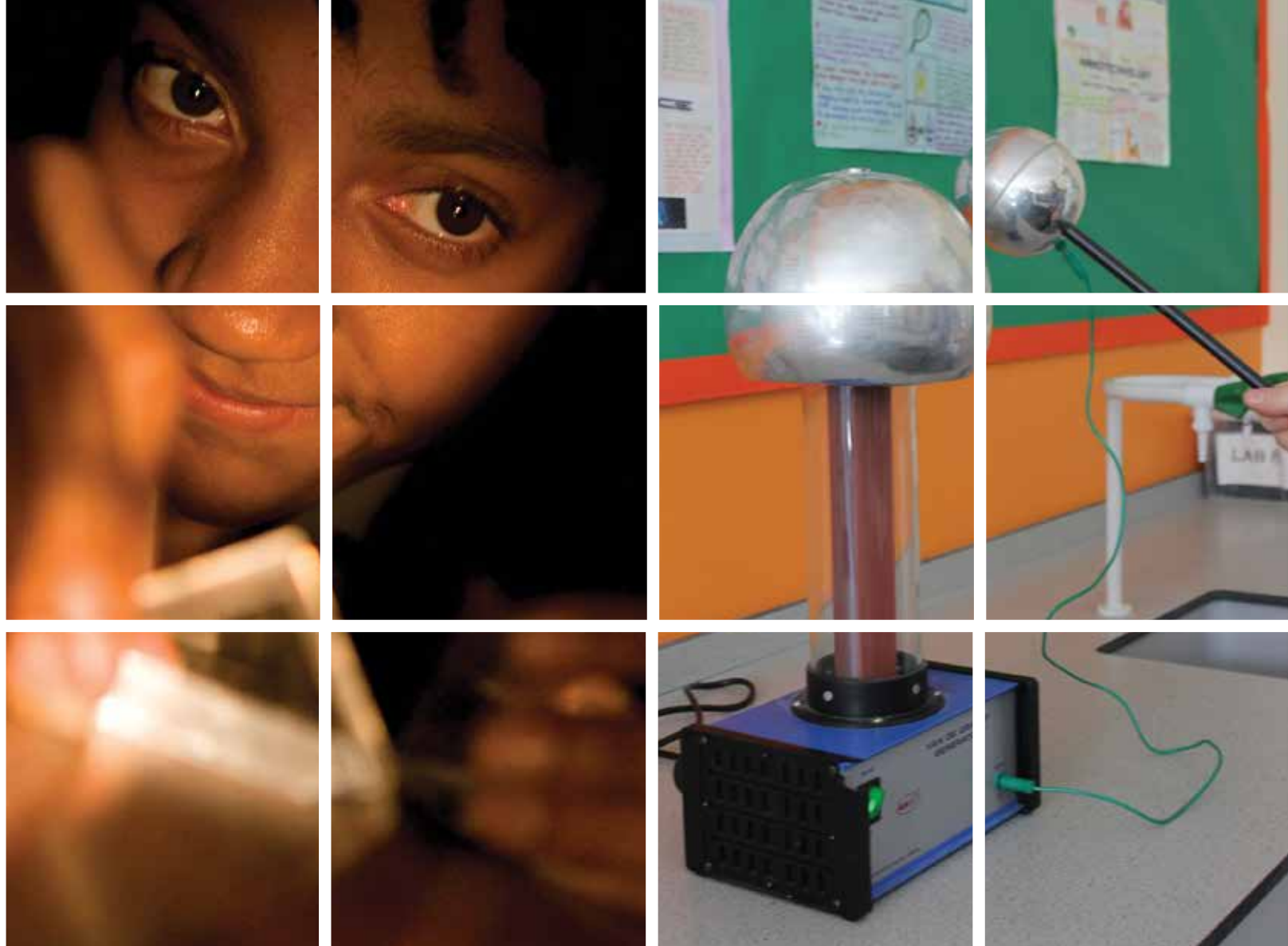
A LEVEL COURSE DESCRIPTION

At St Angela's we follow the OCR A-Level Physics course with a strong emphasis on concepts and ideas within the subject. The topics are built up and developed throughout the two years and allow students to grow in their ideas and subject knowledge. Although the course is not a context-based one, we do ensure that students have every opportunity to see how their physics can be used in the real world and the kinds of jobs, careers and university courses would develop from taking this exciting and challenging route.

The course covers all the areas of physics that universities would expect to see at the end of the qualification. Starting in year 12 with ideas of motion and Newtonian mechanics, we build up towards material science, electricity (direct current) as well as wave dynamics and basic quantum mechanics through a study of Einstein's interpretation of the Photoelectric effect. In year 13 we are then able to take these ideas and open up areas of physics that is rapidly changing even today. These include astrophysics and cosmology (looking at the origins of the universe) as well as the tiny world of particle physics and the questions now being answered at world famous institutions such as CERN, where the Higgs Boson was recently observed.

ENTRY REQUIREMENTS

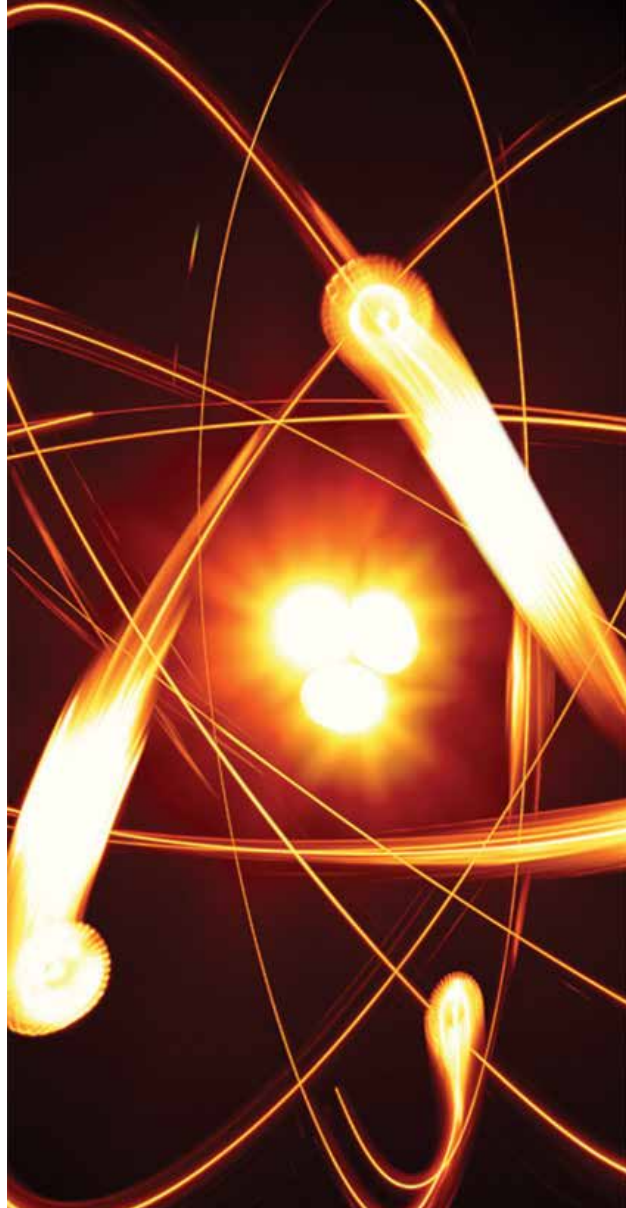
If you wish to study Physics and no other science subject, you will need to achieve at least a 7,7 in GCSE Combined Science or 777 in GCSE Triple Science course. If you wish to study Physics alongside one or more other science disciplines then you will need to have studied GCSE Triple Science, and achieved at least an 888. In order to study ALevel Physics you will need to study ALevel Maths



Progression

Over the past few years, the vast majority of the physics students finishing the course have gone on to take engineering at university. This has included civil, mechanical, aeronautical and biomedical. The department has links with the Engineering Development Trust and can fix for students to go on work experience placements at the end of year 12 as well as taking summer schools at universities in London, including Imperial College. Other students have taken courses such as maths or combinations of maths and physics. Physics has led some of our students into degree-based apprenticeships as well as moving on from degree courses to complete a PhD in Physics at Imperial College.





ASSESSMENT

At the end of year 12 students take two exams based on all the material they will have studied over the past year. The first paper is designed around short answers and multiple choice, while the second paper looks for extended answers. 40% of each paper will be mathematical.

In year 13, to obtain the full A-Level, the students take two papers looking at certain topics and then a third paper covering the whole of the course (a synoptic paper). There is a practical requirement to the course, meaning that students will have to show competence in area of practical lab work through a minimum of twelve experiments.

DEPARTMENTAL ENRICHMENT AND SUPPORT

Over the past few years, we have run trips to a variety of locations to enrich the learning on the course and to allow the students to see their learning in new contexts. These have included the observatory in Greenwich and the Diamond Synchrotron (a form of particle accelerator) in Oxfordshire.

Through our links with engineering firms we go to events such as Engineering Your Future, which is a careers fair together with a chance to meet universities and future employers.

The summer schools and work experience placements are also very popular with our students.

WE make every effort to push the students on to reach the top grades. This includes the use of Isaac Physics, a programme from Cambridge University, to encourage independent problem-solving skills and the Physics Olympiad competition to give our students access to undergraduate level problems and push them on to apply their understanding in increasingly difficult scenarios.

To help and support the students, we run extra revision sessions after school every week and during the school holidays. The students are all provided with a textbook and a pack to guide them through the course. They also use past papers in many lessons and we have established university links to provide master class and mentoring opportunities.

“Students have every opportunity to see how physics can be used in the real world and the kinds of jobs, careers and university courses available from taking this exciting and challenging subject.”

Routes for Success - SCIENCES

ROUTES FOR SUCCESS- SCIENCES

The Routes to Success Programme is designed for ALL students in Year 12 at St Angela's Ursuline 6th Form. The SCIENCES programme aims to offer students opportunities to work with both industry and universities, opportunities will include links

with; London Hospital, Institute of Civil Engineers, Sutton Trust, Kings' College London, Barts and Royal London and Imperial. Summer school opportunities will include links with; City Medicine, City Nursing, Chrysalis, Surrey Science, Queen Mary Engineering and Warwick Medicine.

Please note- All Year 12 students will select one main 'Route for Success' from these in order to experience a specialist enrichment and learning support programme. It will, of course, be possible to select a subject/subjects from another route on your timetable. We base our Routes to Success Programme on the university curriculum structure and university links are not exclusive to one route, so can be accessed by all students.

