Post 16 Select

Barr's Hill School
Building Brighter Futures

President Kennedy School
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STOKE PARK SCHOOL

Physics

At Barr's Hill we are committed to ensuring Science students receive top quality teaching and learning experiences. Students will be taught by experienced members of staff who are passionate about their subject. Students have the opportunity to learn new content but also to complete a number of core practicals to gain a practical endorsement. Alongside the course they will have opportunities and experiences to develop skills that will support them with their future aspirations.

Entry Requirements

To take A Level Physics you need:
A high grade 6 in triple Physics OR A high grade 6 in Physics papers in combined Science AND A grade 6 in Maths

Topics covered

- Topic 1: Working as a Physicist
- Topic 2: Mechanics
- Topic 3: Electric Circuits
- Topic 4 Materials
- Topic 5: Waves and Particle Nature of Light
- Topic 6: Further Mechanics
- Topic 7: Electric and Magnetic Fields
- Topic 8: Nuclear and Particle Physics
- Topic 9: Thermodynamics
- Topic 10: Space
- Topic 11: Nuclear Radiation
- Topic 12: Gravitational Fields
- Topic 13: Oscillations

Skills you will develop on the course

Throughout this course you will have the opportunity to develop the following skills:
- Confidence in carrying out and evaluating practicals
- Gaining an understanding of the ethical implications in science
- Debating controversial topics
- Critiquing of scientific articles

Assessment

There are three external exams sat in May/June at the end of Year 13 and 16 core practicals internally assessed throughout the two years.
The external exams are:
- Paper 1: Advanced Physics I (30%)
- Paper 2: Advanced Physics II (30%)
- Paper 3: General and Practical Principles in Physics (40%)

Educational trips, visits and wider experiences

We commit to organising a visit for all students to Warwick University where students will gain an insight into life as a Physics graduate, meeting university students and lecturers. Students can apply to become a Physics Student Ambassador, where they can gain leadership skills and be involved with the organising and delivery of science clubs across all age ranges at Barr's Hill School. In the spring term, we participate in the British Physics Olympiad Competition, competing against physics students across the country. For eligible students there is the opportunity to do a Nuffield Research Placement over the summer between Year 12 and year 13. We attend a series of online lectures by Northumbria University, where students can learn about the wider aspects and application of physics outside of the curriculum and the current worldwide physics topics being discussed. Students will be given the opportunity to do research projects in physics and gain the silver and gold CREST Award, which is internationally acknowledged. We also hope to arrange a trip to industry, where students can see physics in action, with the potential of this being a trip to CERN in Switzerland to see the Hadron Collider.

What type of students will do well on this course?

To do well on this course you need to be passionate about physics, dedicated, demonstrate good time management and feel confident to seek support if necessary.

For more information contact:

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Post-School Progression Opportunities

University	Entry requirements	Other similar courses offered
University of Birmingham Physics BSc	A*AA / AAAA to include A level Physics and Mathematics	Physics MSci Physics (International Study) BSc/MSci Physics and Astrophysics BSc/MSci Physics and Astrophysics (International Study) BSc/MSci Physics with Particle Physics and Cosmology BSc/MSci Theoretical Physics BSc/MSci
Coventry University Physics BSc	BBB to include A Level Physics and A Level Mathematics 4 in English Language and Maths	Physics MPhys Mathematics and Physics BSc Cloud computing BSc
Oxford University Physics BA	A*AA (with A* in physics or Maths)	Physics MPhys
Northumbria University Physics BSc	120 UCAS points Grade B in A-level Mathematics and Physics 4 in Maths and English Language	Physics MPhys Physics with Astrophysics BSc/MPhys Electrical and Electronic Engineering BEng Civil Engineering BEng
University of Leicester General Engineering BEng	ABB including Maths and Physics Grade 4 in English Language	General Engineering MEng Aerospace Engineering BEng/Meng Mechanical Engineering BEng/Meng Software Engineering BEng/Meng Computer Science BEng/Meng Physics BEng/Meng Physics with Astrophysics BEng/Meng

Career Opportunities

Electrical Engineer

What would I do?
- identify customer requirements
- design systems and products
- read design specifications and technical drawings
- make models and prototypes of products using three-dimensional design software
- communicate with clients and contractors
- record, analyse and interpret test data
- propose modifications and retest products

Salary: Starting: £20,000
UK average: £60,000
Routes in: Bachelor's degree in degree in Electrical or Electronic Engineering

Medical Physicist

What would I do?
- commission, assess and ensure the safe operation of specialist equipment used by medical staff in areas such as radiotherapy, ultrasound, nuclear medicine, laser technology and physiological monitoring
- plan and supervise radiotherapy treatment in discussion with medical and other staff
- speak with patients to explain treatment procedures and possible side effects
- liaise closely with doctors to add technical results to patient reports
- oversee the quality control of equipment to ensure that correct and consistent results or outputs are achieved and ensure that ongoing maintenance routines are followed
- make audit visits to hospital departments to check compliance with health and safety legislation

Salary: Starting: £ 31,365
UK average: £45,753 - £104,927
Routes in: Bachelor's degree in Physics followed by NHS Scientist Training Programme

Research Scientist

What would I do?
- plan and conduct experiments to record, investigate and analyse scientific phenomena
- operate complex instrumentation
- extrapolate data to develop theories to explain phenomena
- develop new products and ways of applying new methodology
- in industry, ensure that the manufacture of new products and materials can be carried out without problems regardless of scale
- manage a research team (which may include technicians and support staff), or a group of research students in an academic department
- teach or lecture students.

Salary: Starting: £15,285
UK average: £50,000 - £75,000.
Routes in: Bachelor's degree in Physics