Northallerton School & Sixth Form College
Being the best we can be

**Year 12 Physics**

The Physics A-Level course is structured to build upon students' prior knowledge from GCSE. The Introductory skills module aims to cover the basic maths skills needed and the techniques to present data and analyse it in a scientific method. This acts as a foundation for the rest of the A-Level. Year 12 covers the content that is on the AS spec but all taught to A2 standard.
The course is taught by two teachers, so students will be learning two different topics simultaneously. Lessons will involve a mix of teacher led lessons, individual work and group work. Students are encouraged to work together and to ask questions throughout.
Twelve required practicals must be completed in order for the students to gain a teacher endorsement, these are completed throughout the two years of the course. In addition, lots of other practical work will be carried out to support learning and develop practical skills.
Practical work is important for a number of reasons; it supports and consolidates the concepts being taught, develops investigative, transferable skills and also helps students learn how to master practical skills such as handling specialist equipment with confidence.

| Methods of deepening and securing knowledge: | |
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| **Interleaving** | Starter tasks are designed to check knowledge from, not only the previous lesson, but also lessons earlier in the topic and sometimes even other topics within physics which they will have covered previously. |
| **Checkpoints/ mini plenaries** | These are used within lessons to check understanding and address any misconceptions before moving on. |
| **Independent study** | Exam questions are used to provide plenty of practise at applying their knowledge to new situations. Students are also expected to use their specification to make their own set of notes to reinforce the lessons. |
| **Assessment for progress** | Each of the topics conclude with an end of topic test from which feedback is provided. |

| | Autumn term 1 | Autumn term 2 | Spring term 1 |
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| Topic(s) | • Introductory skills.<br>• Particle physics.<br>• Electricity. | • Particle physics.<br>• Electricity. | • Mechanics - statics and kinematics.<br>• EM radiation and quantum phenomena. |
| Assessment | End of topic tests. | End of topic tests. | End of topic tests. |

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| CEIAG *(Careers that are linked to that topic)* | Particle physicist, electrical engineer. | | Mechanical engineer, aeronautical engineer, civil engineer. |

| | Spring term 2 | Summer term 1 | Summer term 2 |
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| Topic(s) | • Mechanics - forces and momentum.<br>• Waves and optics. | • Mechanics - work, energy and power.<br>• Materials. | Practical skills. |
| Assessment | End of topic tests. | End of topic tests. | Year 12 trial exam. |
| CEIAG *(Careers that are linked to that topic)* | Architect, sound engineer. | Material scientist, manufacturing engineer, automotive engineer. | |

| Independent Study |
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| Exam question independent study (both long answer questions and multiple choice) is given weekly and Seneca learning is used to support learning and provide low-stakes assessment tasks. |