

Curriculum Intent, Implementation and Impact

Subject: A Level Physics A (OCR H556)

Year group: 12

Periods per fortnight: 8

INTENT:

Vision: Engagement, Discovery and Success

Mission Statement:

In the Buckingham School Science Department, lessons are fun and **engaging**. Students are encouraged to develop the curiosity they need to **discover** new concepts for themselves. Lessons are planned with students' **engagement** in mind and, where possible, we will use practical activities. Questioning is encouraged, in particular 'why?' and 'how?'. Students' effort and hard work are rewarded. Students are aware of how their learning is progressing and are proud of their **success**. At the end of the course students are well prepared for a career in science should they wish, and are able to use the scientific skills they have acquired in whatever they choose to do in the future.

In year 12, students cover different areas of physics. The lessons are taught using a range of different techniques, including practical and written tasks.

The school virtues are encouraged throughout the teaching of the topics and embedded into schemes of learning.

Ambition – Science careers are discussed as part of the 'big-picture' section of our teaching. Students are taught how what they are doing applies to the outside world.

Confidence – Students develop the confidence to carry out practical tasks and written work. Success is rewarded within the department and students are encouraged to learn from their mistakes.

Respect – Students are taught to be respectful of each other and of their environment. Students' opinions are given equal weighting and students are given the chance to have their views heard.

Empathy – Within science empathy is a very important skill. It is important to be able to put yourself into someone else's shoes in order to see how a particular scientific advancement might affect them. We often refer to other people's beliefs and ethics within the curriculum.

Resilience – Resilience is very important within science. Students are encouraged to discover new ideas for themselves, make hypotheses and potentially make mistakes. Mistakes are as important in science as being correct. Students develop these skills by being encouraged to come up with their own ideas and then test them.

Integrity – Integrity in science is developed by encouraging key scientific principles of objectivity, clarity and reproducibility. Scientific studies must be carried out without bias and this is a key skill we address in our teaching of the practical aspect of the course.

Curiosity – We develop curiosity through the discovery aspect of the lessons. Students are encouraged as much as possible to discover new concepts for themselves through practical tasks. They should make their own conclusions about the world around them.

We try to meet the need of all learners within the department by setting our expectations as high as possible, challenging our students with questions and tasks that deepen their understanding of the world around them, at the same time as support is offered to students who need a different path to achieve their full potential.

IMPLEMENTATION:

Term	Topics studied	Extended learning opportunities	How parents could support students
Autumn Term	Module 1* – Development of practical skills in physics 1.1.1 Planning 1.1.2 Implementing 1.1.3 Analysis 1.1.4 Evaluation 1.2.1 Practical skills 1.2.2 Use of apparatus & techniques Module 2 – Foundations of physics 2.1.1 Physical quantities 2.1.2 Units 2.2.1 Measurements and uncertainties 2.3.1 Scalars and vectors	Extended Learning: - Practice exam style questions - Produce flash cards/diagrams with the content of each section - Research and complete specific assignments - Read books and scientific magazines - Completion of PAG analysis questions & extension questions	Ensure students have the correct equipment for the course (scientific calculator & textbook). Motivate their children to revise regularly, preferably following a revision timetable – especially revisiting previous topics, including similar KS4 topics which, are now being developed further. Ask their children about what they are learning and discuss the subjects with them. Incentivise their children to use websites for studying and read around the subject.
Spring Term	Module 3 – Forces and motion 3.1 Motion 3.2 Forces in action 3.3 Work, energy and power 3.4 Materials 3.4 Newton's laws of motion and momentum	Extended Learning: - Practice exam style questions - Produce flash cards/diagrams with the content of each section - Research and complete specific assignments - Read books and scientific magazines - Completion of PAG analysis questions & extension questions	Ensure students have the correct equipment for the course (scientific calculator & textbook). Motivate their children to revise regularly, preferably following a revision timetable – especially revisiting previous topics, including similar KS4 topics which, are now being developed further. Ask their children about what they are learning and discuss the subjects with them. Incentivise their children to use websites for studying and read around the subject.
Summer Term	Module 4 – Electrons, waves and photons 4.1 Charge and current 4.2 Energy, power and resistance 4.3 Electrical circuits 4.4 Waves 4.5 Quantum physics	Extended Learning: - Practice exam style questions - Produce flash cards/diagrams with the content of each section - Research and complete specific assignments - Read books and scientific magazines - Completion of PAG analysis questions & extension questions	Ensure students have the correct equipment for the course (scientific calculator & textbook). Motivate their children to revise regularly, preferably following a revision timetable – especially revisiting previous topics, including similar KS4 topics, which, are now being developed further. Ask their children about what they are learning and discuss the subjects with them. Incentivise their children to use websites for studying and read around the subject.

*Module 1 will be taught throughout all terms in Year 1 to allow for full integration of practical skills across each of the remaining modules.

IMPACT:

By the end of Year 12 students be well versed in physics concepts. The students will have developed essential knowledge and understanding of different areas of the subject and how they relate to each other. The students will also be displaying the school virtues within their physics lessons, as well as being **engaged**, developing a love for **discovery** and showing **success** in their curriculum.

The students will be assessed through their PAG assignments, End of Module tests as well as ongoing questioning (both verbal and written) within the class. A Mock Exam will be completed at the end of the year.