

# A LEVEL PHYSICS: A COMPLETE GUIDE FOR NEW TEACHERS

CODE 8745

## ABOUT THIS COURSE

This course offers an introduction and overview to teaching the AQA A-level Physics programme of study for anyone in their first 3 years of teaching the course, or for anyone lacking confidence in delivering the course effectively. While assessment materials will be drawn from the AQA course, many of the ideas will be applicable to other specifications.

## PROGRAMME

	TIME
<b>Good A Level Physics Teaching from the Start</b>	10.00 – 10.40am
<ul style="list-style-type: none"> <li>What are the key, core messages, and differences when developing students forward from GCSE to A level Physics? How to make the transition smooth</li> <li>What does good A Level Physics teaching look like – what you should be aiming for</li> <li>The dynamism of making AL Physics not only accessible, but enjoyable and inspiring to students – how to embed that into your teaching but humanising the curriculum</li> <li>Tracking – how to ensure you and your students know where they are and how to get where they want to</li> </ul>	
Discussion: coffee break	10.40 – 11.00am
<b>Overview of the AQA A Level Physics course including challenges and what to expect from pupils</b>	11.00 – 11.30am
<ul style="list-style-type: none"> <li>Overview of the specification and how the course is organised</li> <li>Ensuring students and teachers hit the ground running in September – introducing the scheme of work and baseline assessment</li> <li>Recognising which areas will be most challenging for you and how to address these issues</li> <li>Ensuring topic areas which create the foundation for success – incorporating them into every lesson</li> </ul>	
<b>Key ideas for teaching the content knowledge from Paper 1</b>	11.30 – 12.15pm
<ul style="list-style-type: none"> <li>Practical strategies to develop students' use of technical language and scientific terms</li> <li>Ways to build students' confidence when applying scientific knowledge, principles and concepts in unfamiliar contexts</li> <li>Planning and teaching the some more demanding topics: further mechanics, electricity and fields</li> <li>Making complicated concepts easy</li> </ul>	
<b>How to Effectively Embed Maths Skills into your teaching</b>	12.15 – 1.00pm
<ul style="list-style-type: none"> <li>Analysing ways to embed maths skills in teaching to develop the skills of constructing and interpreting tables and graphs, using powers and indices, understanding measures of dispersion and solving algebraic equations.</li> <li>Demonstrating examples that can be used to build students' confidence when translating information between graphical, numerical and algebraic forms and applying formulae in response to exam questions e.g. volume of a cylinder, exponentials equations and the use of trigonometry in A level physics</li> <li>Applying skills that students find difficult in exam questions e.g. using appropriate significant figures, applying graphical data to a question, using logarithms</li> <li>Teaching students to answer maths-based exam questions – using metacognitive modelling as a way to demonstrate how to think when faced with a challenging maths question. Using modelling as a scaffolding technique to support the less confident mathematicians.</li> </ul>	
Lunch and informal discussion	1.00 – 2.00pm
<b>Effectively teaching the Practical Skills</b>	2.00 – 2.45pm
<ul style="list-style-type: none"> <li>The essential terminology that needs constant reinforcement – the 'language of measurement' such as accuracy, precision and validity</li> <li>Direct assessment of practical skills in the PAGs – an overview of the required standards and what the moderators are looking for in the students' evidence and in the teacher's records</li> <li>Teaching experimental design – activities that build students' confidence in selecting apparatus, equipment and techniques</li> <li>Developing students' evaluation skills – strategies to help them identify limitations in experimental procedures and suggest improvements.</li> <li>Teaching students the skills of describing data, explaining data and making conclusions in response to exam questions</li> </ul>	
<b>Key ideas for teaching Further mechanics, Fields and Electricity</b>	2.45 – 3.30pm
<ul style="list-style-type: none"> <li>Visualising SHM – how to stretch the most able whilst supporting the weaker students</li> <li>Practical electricity – using concrete examples to build students confidence and broaden their knowledge when teaching electricity</li> <li>Humanising the curriculum – how to take the abstract and use history as a hook to galvanizing your teaching of electricity</li> <li>Fields through models – how simulations and modelling can help students to understand abstract concepts and increase their understanding</li> </ul>	
<b>Key ideas for teaching Further mechanics, Fields and Electricity</b>	2.45 – 3.30pm
<ul style="list-style-type: none"> <li>Methodologies that boost student attainment: how to improve students by one grade, targeting top grades (A-A*).</li> <li>Teaching towards the 'endgame', what language to use, ensure you are marking 'like the examiner' and secure grading</li> <li>Exam questions and model answers, looking at what success looks like</li> </ul>	

LOCATION/DATE

London

Thursday 24 November 2022

## WHO SHOULD ATTEND?

- New or recently new teachers of AQA A Level Physics
- Heads of Physics
- Heads of Science
- Mentors responsible for new teachers in Science

## BENEFITS OF ATTENDING

- Provide teachers of A-level Physics the material and confidence to teach effectively to all ability ranges
- Gain clear understanding of the key challenge areas and how to teach them
- Gain insight into the content, the exam structure and the how exams are marked
- Take away strategies on how best to support students in the NEA component
- Understanding of how to differentiate using scaffold and stretch strategies for essay writing
- Develop ways to improve outcomes across the ability range
- Examine lots of ideas on how the maths and practical skills can be embedded throughout the course
- Take away some activities that can be adapted for use when teaching a range of different topics