Welcome to the Nishkam High School Physics department

More than Academic Excellence | More than a School | More than 'Self'

Head of Department welcome

Mr Nicholas Cresswell MPhys

Head of Physics

Meet the department

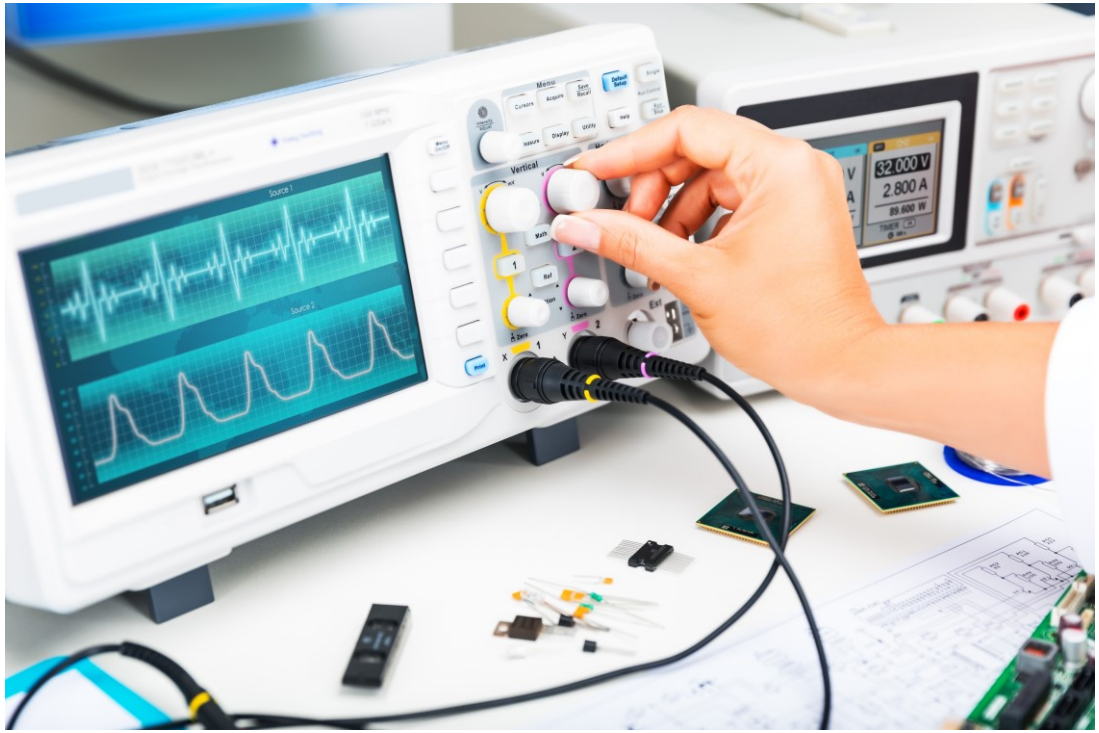
Mr Tom Dowthwaite BSc

Lead Practitioner

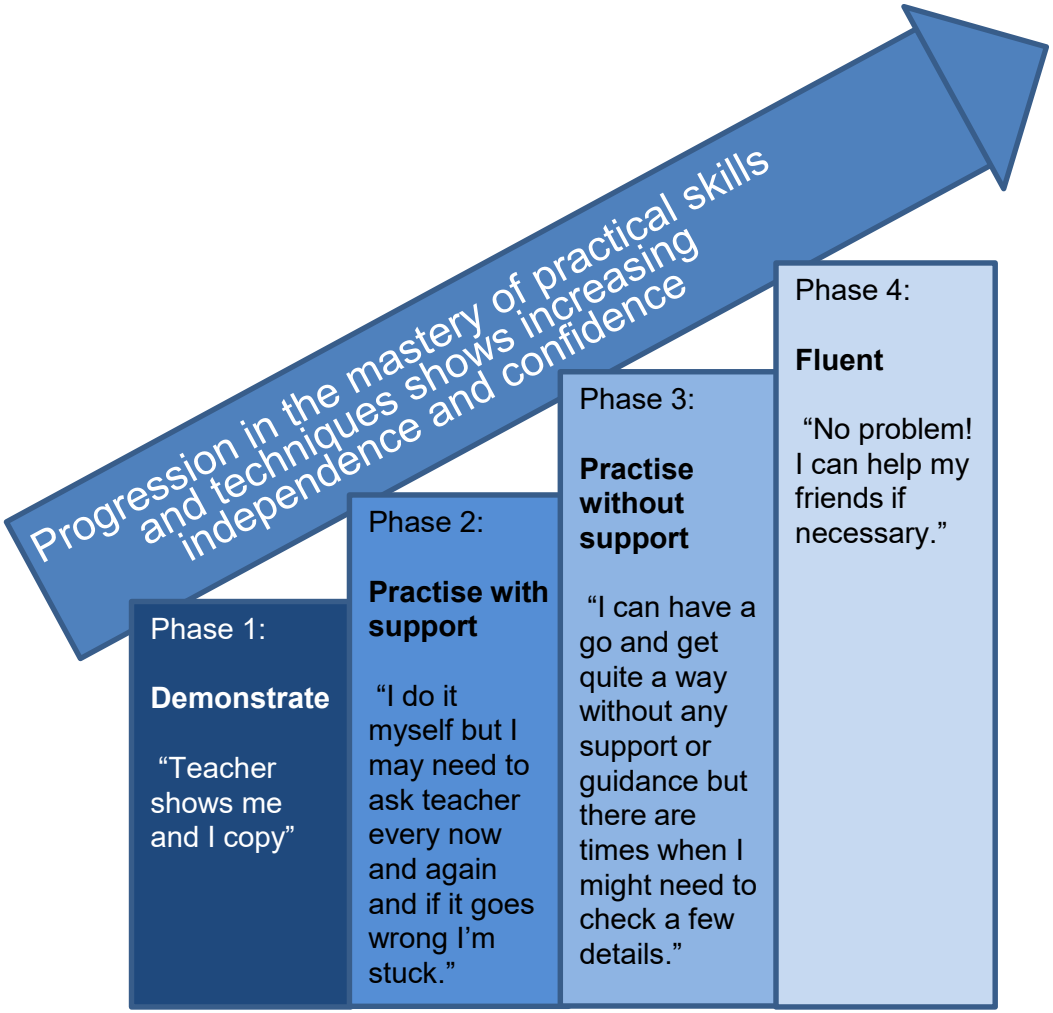
Photo tour of the department

What you can expect in your Physics lessons

- Experimentation to determine the mathematical relationships between physical quantities.
  - We will complete a minimum of 12 required practical experiments to develop the investigative skills required for a University science degree course.



What you can expect in your Physics lessons



Follows written procedures

Investigative approach

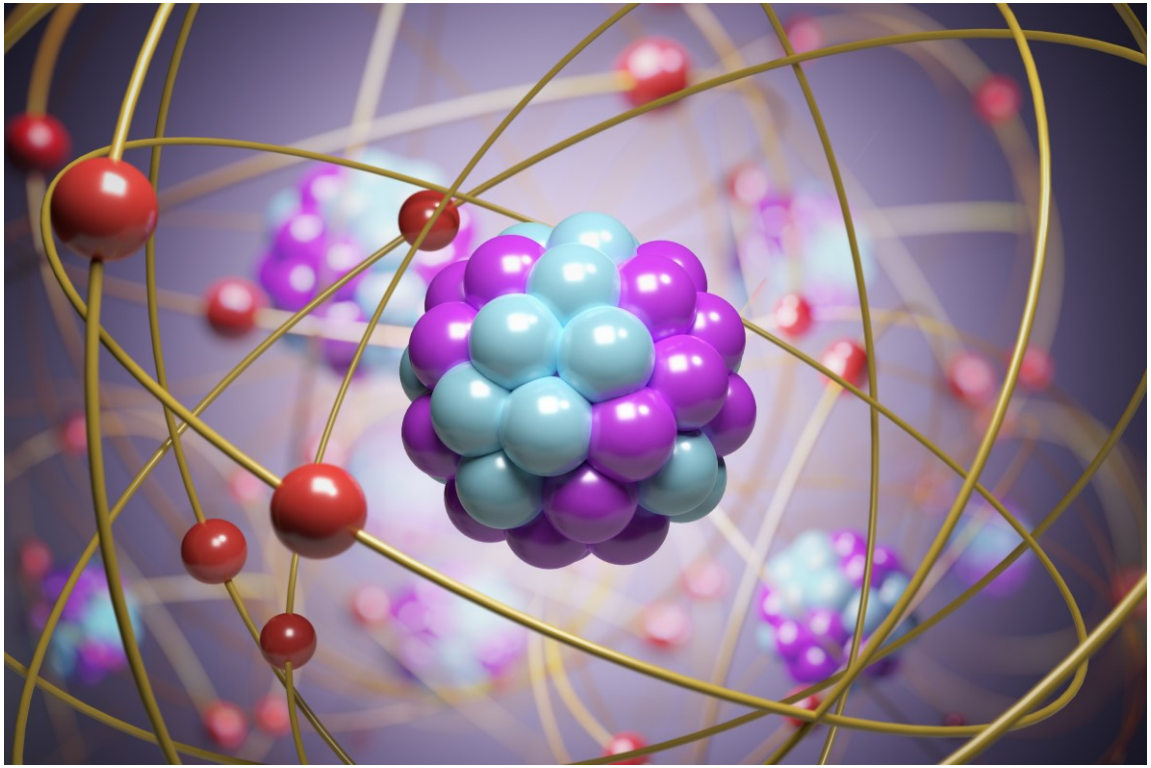
Safe

Observations

Researches, references and reports

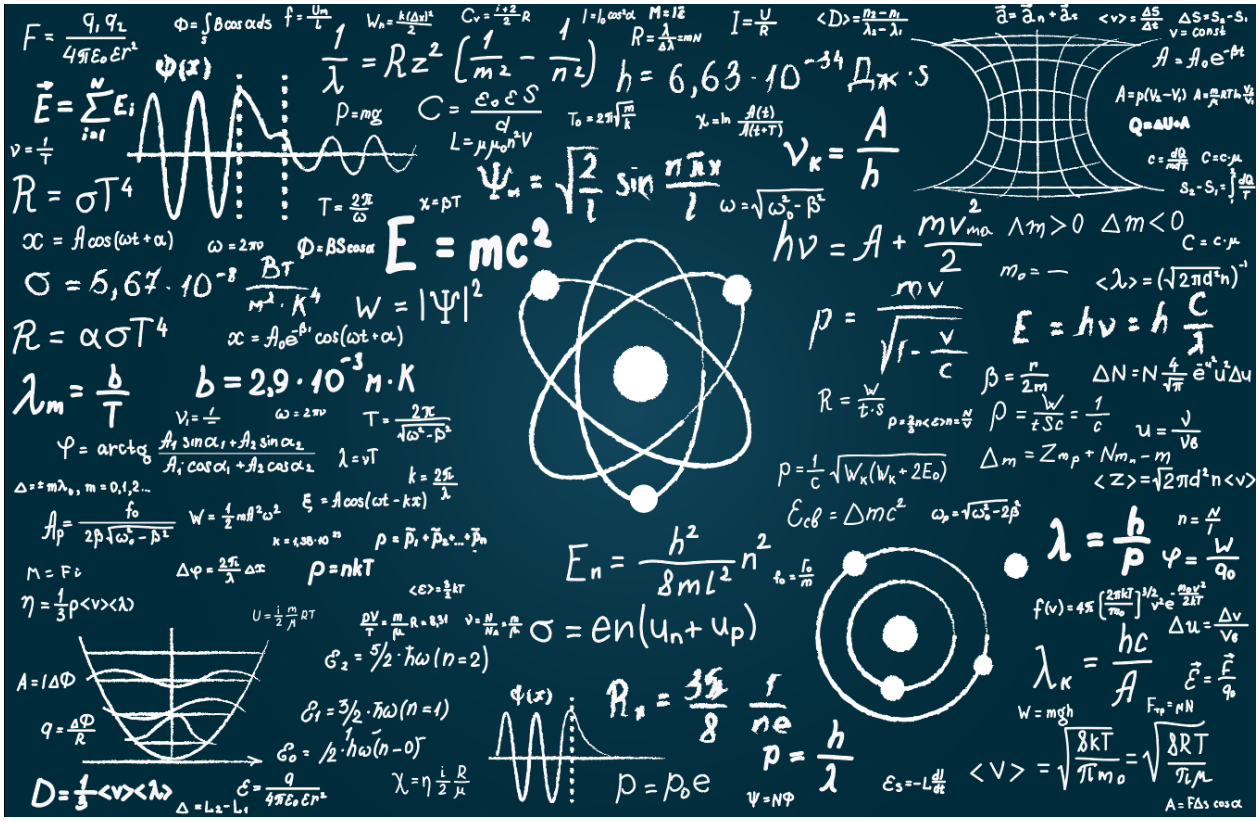
What you can expect in your Physics lessons

- Exploration and understanding of physical concepts.
  - We will be taking a qualitative look at the Universe, from the scale of sub-atomic particles through to the scale of planetary bodies.



What you can expect in your Physics lessons

- Mathematical descriptions of the relationships between physical quantities.
  - We will be learning and applying mathematical equations to make predictions and find missing variables.



What you will study in Physics

- Particles and Radiation
  - Subatomic particles and Quantum Phenomena
- Waves and Optics
  - Mechanical Waves, Electromagnetic Waves and Optics
- Mechanics and Materials
  - Static Forces, Forces and Motion, Newton's Laws, Momentum, Energy Conservation, Material Properties, Motion in a Circle and Simple Harmonic Motion
- Electricity
  - Electrical Current and Analysing DC circuits
- Thermal Physics
  - Specific Heat Capacity and Specific Latent Heat, Experimental Gas Laws and Kinetic Theory
- Fields
  - Gravitational Fields, Electrostatic Fields, Magnetic Fields and Electromagnetic Induction
- Nuclear Physics
  - Radioactivity and Nuclear Energy
- Turning Points in Physics
  - The discovery of the electron, Wave particle duality and Special relativity

How you will be assessed in Physics

Paper 1	Paper 2	Paper 3
What's assessed Sections 1–5 and 6.1 (Periodic motion)	**What's assessed** Sections 6.2 (Thermal Physics), 7 and 8 Assumed knowledge from sections 1 to 6.1	**What's assessed** Section A: Compulsory section: Practical skills and data analysis Section B: Students enter for **one** of sections 9, 10, 11, 12 or 13
Assessed • written exam: 2 hours • 85 marks • 34% of A-level	**Assessed** • written exam: 2 hours • 85 marks • 34% of A-level	**Assessed** • written exam: 2 hours • 80 marks • 32% of A-level
Questions 60 marks of short and long answer questions and 25 multiple choice questions on content.	**Questions** 60 marks of short and long answer questions and 25 multiple choice questions on content.	**Questions** 45 marks of short and long answer questions on practical experiments and data analysis. 35 marks of short and long answer questions on optional topic.

Extra-curricular opportunities in Physics

Currently a number of Universities are running online Physics events which our students will be invited to participate in. These cover a wide range of topics, with the favourite being particle physics as well as careers events run by the National Space centre, led by experts in their respective fields.

Where can Physics take you?

Environment and climate

Energy

Medicine

Buildings and structures

Space

Law and finance

Education

Sports

Music and Television

Transport

What we expect from you

- Conscientiousness – Both a commitment to studies and an attention to detail.
  - A conscientious student is always punctual, arrives with all equipment necessary and meets all the deadlines.
- Expert Mathematician – The ability to understand a mathematical question, choosing the correct information and relevant mathematical formula to solve a problem.
  - An expert mathematician can rearrange equations with ease and solve complex equations using a systematic and logical approach.
- Spatial Awareness – The ability to visualise physical situations and create appropriate diagrams.
  - A student with good spatial awareness can derive useful information from diagrams and create their own in order to ascertain more important information about a given scenario.

Student perceptions

Students find the course both challenging and rewarding. They recognise the difficulty of the course, but they approach it with commitment, diligence and optimism that allows them to succeed.

"I love learning about physics and how it explains so much about everything around us and the teacher relates it to things I already know about."

"I didn't realise how much maths would be involved."

"The teachers are always willing to help when I'm stuck on a question or I don't understand something."

"I'm not going to lie, I found physics really hard. But I get a real sense of accomplishment when I solve a problem or understand a difficult topic."

Qualification details

- 6 in Physics/Science
- 6 in Maths
- 6 in English
- 5 GCSE grades 6-9

All of the Nishkam Sixth Form Open Evening resources can be found on the school's website within the Sixth Form section.

Applications are also now open and are available to complete electronically through the 'Apply' section of our Sixth Form page.

We look forward to welcoming many of you to our classrooms in September 2021