KIMICHI SCHOOL WORCESTER · CURRICULUM JOURNEY

Physics

AQA GCSE Physics 8463

How Physics builds, year on year, from Lower School A to Upper Seniors

Lower School A
Year 7

- Forces, waves, electricity and space
- Safe practical enquiry and measurement

MILESTONE
First set of results plotted

Lower School B
Year 8

- Forces and motion developed; energy
- Practical method, data and scientific vocabulary

MILESTONE
Can rearrange an equation

Inters
Year 9

- The particle model and energy
- GCSE bridge across the seven big ideas

MILESTONE
GCSE options decision

Lower Seniors
Year 10

- Electricity, then magnetism and electromagnetism
- GCSE core units and required practicals

MILESTONE
Required practicals logged

Upper Seniors
Year 11

- Atomic and nuclear physics; radioactivity; astrophysics
- Synoptic revision, maths skills and exam practice

MILESTONE
GCSE Physics

WITH MATHS
Equations, rearrangement, graphs and units — the closest partnership in the curriculum.

WITH MUSIC
Waves, frequency, harmonics and how an instrument actually makes sound.

WITH CHEMISTRY
Particle model, energy and the structure of matter.

CONSTANT AT EVERY STAGE

Classes of no more than ten · Music at the heart · Personalised pathways · Every pupil performs · Mathematical modelling threaded throughout

Every stage builds knowledge, skills, confidence and character — with music enriching learning all the way through.

INTENT — WHY WE TEACH IT

Physics builds pupils' understanding of forces, energy, matter and the universe. Seven big ideas — forces and motion; energy; waves; electricity and magnetism; particle model and matter; atomic and nuclear; space — recur each year at rising demand, with mathematical modelling threaded throughout. At a music school it has a particular hook: waves, frequency and harmonics explain something every pupil here already does with their hands.

WHY THE SEQUENCE RUNS THIS WAY

Forces and motion and energy underpin everything that follows. The particle model links matter to energy. Electricity precedes magnetism and electromagnetism, because the second makes no sense without the first. Atomic, nuclear and space extend the particle model out to the cosmos, which is why they sit last. Mathematical skill spirals alongside, deliberately, rather than being assumed.

WHAT IT BUILDS ON, AND WHAT IT LEADS TO

Builds on primary science and, more than any other science, on Maths — equations, rearrangement, graphs and units. Assumes no prior physics. Leads to GCSE Physics (AQA 8463), and to A level Physics, engineering, computing and the technical side of the music industry, from acoustics to sound engineering.

HOW IT IS ASSESSED

AQA GCSE Physics 8463. Low-stakes retrieval every lesson against the seven big ideas. Required practicals logged as completed. Weekly equation and unit fluency checks — brief, and the single highest-value routine in this subject. Full papers from the summer of Year 10.

ADAPTED FOR OUR PUPILS

Required practicals are pre-taught and, where a pupil is anxious about equipment, rehearsed before the assessed run. Method sheets are chunked and issued in advance. Calculations are supported jointly with the Maths teacher so the method matches. A pupil who cannot manage a practical on the day observes and writes it up from a recording rather than losing the content. All material is on the online platform so a pupil at home during illness or a period of anxiety keeps pace. Equation sheets are permitted in class throughout, so that a pupil is never blocked from the physics by a memory problem.

IMPACT — WHAT YOU WOULD SEE

Pupils who reach for an equation rather than freezing. Graphs plotted and interpreted with confidence. Pupils who can explain, in plain words, what a model is telling them. No systematic gap between the written and the mathematical questions.

WHAT HELPS AT HOME

Ask "why does that happen?" about ordinary things — kettles, bikes, headphones. Look up at the sky. If the maths is the sticking point, say so to us early; it usually is, and it is fixable.