PHYSICS LEARNING JOURNEY

Understanding and Applying Scientific Skills

Year 7 → Year 11

- Understanding variables
- Writing methods
- Assessing impact of scientific concepts
- Drawing conclusions
- Applying maths to the scientific concepts
- Describe patterns
- Evaluation of scientific concepts
- Drawing graphs and analyzing graphical data
- Analysis of secondary data
- Modelling scientific concepts
- Understanding relationships between science and society
- IDEAL Identify, describe, explain, apply, link
- Risk Assessment
- Evaluating data and investigations

Final GCSE exams

YEAR 11

- **Revision**
- **EM Induction**: National grid; Transformers; Transformers & energy
- **Magnetism**: Magnetic forces; Electro magnets; Attraction & repulsion; Magnetic fields
- **Electricity**: Wiring a plug; Electricity in our homes; Potential difference; Resistance in circuits; Resistance; Voltage; Current; AC/DC & electrical safety; Power; Circuits – parallel & series; Transferring energy
- **Forces Work & effects**: Resolving vectors; Power/Work done relationship; Kinetic energy; Calculating work done; Fields; Calculating power; Grav. Pot. Energy
- **Forces & matter**: Bending & stretching; Investigate springs
- **Particle Model**: Density; Specific latent heat; Gas temp & pressure; Specific heat capacity

YEAR 10

- **Forces & motion**: Crash hazards; Stopping distances; Momentum; Resultant forces; Mass & weight; Newton; Distance velocity time graphs; Acceleration; Forces & quantities; Vectors & scalars
- **EM Spectrum**: EM radiation dangers; Electromagnetic waves; Using short & long wavelengths; The electromagnetic spectrum
- **Waves**: Waves crossing boundaries; Wave calculations; Refraction; Features of waves
- **Energy**: Renewable & non-renewable energy; Kinetic energy; Efficiency; Gravitational energy; Energy transfers
- **Radioactivity**: Understanding & calculating half lives; Nuclear equations; Background radiation; Dangers of ionizing radiation; Alpha, beta & gamma; Electrons & orbits; Inside atoms; Atomic models
- **Maths for Science**

$$^{A}_{Z}X \rightarrow {}^{A-4}_{Z-2}Y + {}^{4}_{2}\alpha$$

YEAR 9

- **Sound & Waves**: Loudness & pitch; Detecting sound; Sound and energy transfer; Waves
- **Light**: Reflection; Refraction; The camera; Colours; The eye
- **Energy2**: Energy adds up; Energy Transfer particles; Conduction & Convection; Energy & Power; Energy & Temp; Radiation
- **Electricity**: Potential difference; Resistance; Static Electric; Circuits & current; Series & parallel

YEAR 8

- **Energy2**: Energy stores; Power; Non Renewable resources; Renewable resources; Paying for energy; Energy In Food
- **Magnets & Circuits**: Motors; Electric circuits; Basic Magnets; Electro magnets; Magnetic Fields
- **Space**: The Universe; The solar system; Earth & Moon; The night sky

YEAR 7

- **Forces**: Balancing forces; Drag forces & friction; Representing forces; Forces at a distance; Stretching & squashing; Identifying forces

CROSS-CURRICULAR LINKS

Isotopes →	Chemistry	Energy →	Chemistry
Electricity →	Technology	Calculations →	Mathematics
Pressure →	Chemistry	Radiation dangers →	Biology
Atomic models →	Chemistry	Detecting light & sound →	Biology