

Physics – Key Stage 4 Curriculum Overview

	HT1	HT2	HT3	HT4	HT5	HT6
Year 10	Energy Electricity		Particle nature of matter		Nuclear Forces 1	
Cross Curricular Links	Electricity – GCSE Engineering – multimeters, circuits		Particles – Y9 Maths - density		- Forces – GCSE Engineering Hooke's Law and Young's modulus, velocity, acceleration - Nuclear – Y9 History – 2nd World War	
Year 11	Forces 2		Waves Magnetism and Electromagnetism		Space	
Cross Curricular Links	Forces – GCSE Engineering – gear ratios, pressure, SI units		- Waves – Y9 History 2nd World War (Sonar, radar) - Waves – Y9 Geography – Restless planet		Space – Y9 Geography – Restless planet, Big Bang	

Mathematical Requirements in Science

Link stated is the **FIRST** time this is taught in maths, as these are taught frequently throughout the maths curriculum

1	Arithmetic and numerical computation
a	Recognise and use expressions in decimal form
b	Recognise and use expressions in standard form
c	Use ratios, fractions and percentages
d	Make estimates of the results of simple calculations

2	Handling data
a	Use an appropriate number of significant figures
b	Find arithmetic means
c	Construct and interpret frequency tables and diagrams, bar charts and histograms
f	Understand the terms mean, mode and median
g	Use a scatter diagram to identify a correlation between two variables
h	Make order of magnitude calculations

3	Algebra
a	Understand and use the symbols: =, <, <<, >>, >, $\propto$, ~
b	Change the subject of an equation
c	Substitute numerical values into algebraic equations using appropriate units for physical quantities
d	Solve simple algebraic equations

Y7 Maths 3 Place Value
Y8 Maths 4 Standard Form
Y7 Maths 11 Fractions, Decimals and Percentages
Y7 Maths 14 Numerical Reasoning

Y7 Maths 3 Place Value
Y7 Maths 5 Multiplication and division
Y7 Maths 4 Addition and Subtraction
Y7 Maths 3 Place Value, Y7 Maths 5 x and $\div$
Y8 Maths 15 Data Handling, scatter graphs, tables
Y8 Maths 10 Proportion and scale, 11 Enlargement

Y7 Maths 3 Place Value
Y8 Maths 8 Solving Equations
Y7 Maths 2 Algebraic notation, 10 Solving Equations, Y9 Maths 10 Financial Maths
Y8 Maths 8 Solving Equations

4	Graphs
a	Translate information between graphical and numeric form
b	Understand that $y = mx + c$ represents a linear relationship
c	Plot two variables from experimental or other data
d	Determine the slope and intercept of a linear graph
e	Draw and use the slope of a tangent to a curve as a measure of rate of change
f	Understand the physical significance of area between a curve and the x-axis and measure it by counting squares as appropriate

5	Geometry and trigonometry
a	Use angular measures in degrees
b	Visualise and represent 2D and 3D forms including two dimensional representations of 3D objects
c	Calculate areas of triangles and rectangles, surface areas and volumes of cubes

Y7 Maths 4 Addition and Subtraction, Y8 15 Data handling
Y9 Maths 2 The Cartesian Plane
Y8 Maths 15 Data handling
Y9 Maths 2 The Cartesian Plane
Y11 H 4 Non-linear graphs
Y11 F 3 Non- linear graphs, Y11 H 4 Non-linear graphs

Y7 Maths 12 Measuring and construction
Y7 Maths 5 x and $\div$, Y9 5 3D shapes
Y7 Maths 5 x and $\div$, Y9 5 3D shapes