

# Mathematics Learning Journey



Level 2 or 3  
Apprenticeships

A Level Further Mathematics  
A Level Mathematics  
AS Further Mathematics  
Core Mathematics

REVISION OF TOPICS USING EXAM PAPERS AND OTHER RESOURCES



Reciprocal and exponential graphs; gradient and area under graphs

Direct and inverse proportion

FEBRUARY EXAM SERIES

R and P

Quadratics, expanding more than two brackets, sketching graphs, graphs of circles, cubes and quadratics.

Circle theorems, circle geometry.

Changing the subject of the formulae, proof. Algebraic fractions, solving equations arising from algebraic fractions, rationalising surds.

Vectors and geometric proof.

Geometry and Measure

Algebra

Geometry and Measure

NOVEMBER EXAM SERIES

Algebra

Geometry and Measure

Algebra

Further trigonometry.

YEAR 11

Geometry and Measure

Algebra

Geometry and Measure

Algebra

Algebra

Geometry and Measure

Algebra

Algebra

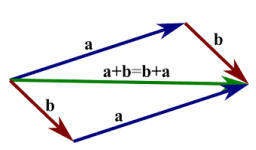
Ratio and proportion.

Circles, cylinders, cones and spheres.

Multiplicative relationships. Plans and elevations. Constructions.

Quadratic equations: expanding and factorising.

Vectors



Rearranging equations, graphs of cubic and reciprocal functions and simultaneous equations

Angles, polygons, perimeter, area, sectors and arc length. 3D forms and volume. Constructions.

Collecting data, averages, representing data, cumulative frequency, boxplots and histograms.

Tree diagrams and Venn diagrams.

Algebraic fractions.

Quadratic, cubic and other graphs. Solving quadratic and simultaneous equations. Inequalities.

Linear graphs and coordinate geometry

Expanding brackets.

Recap and extend types of number. Recurring decimals. Recap standard form.

END OF YEAR 10 EXAM SERIES

Geometry and Measure

Statistics

Geometry and Measure

Probability

Algebra

Number

Algebra

Geometry and Measure

Algebra

Number

Higher/Foundation

Tables, charts and graphs, pie charts, scatter diagrams, averages and sampling

Transformations review and extend. Perimeter, area and volume, circles.

Probability review

Fractions, decimals and percentages

Setting up, rearranging, solving a variety of equations.

Trigonometry. Transformations.

Checking calculations and rounding. Indices, roots reciprocals and hierarchy of operations. Factors, multiples, primes, standard form and surds.

Linear  $y=mx+c$  and real life graphs

YEAR 10

Upper/Middle sets



Sequences

Fractions and percentages.

Unitary method, best buys, compound measures, compound interest.

Trigonometry. Transformations.

Checking calculations and rounding. Indices, roots reciprocals and hierarchy of operations. Factors, multiples, primes, standard form and surds.

Linear  $y=mx+c$  and real life graphs

Types of number, Indices and standard form.

Algebra

Single and combined events, two way tables, Venn diagrams

Number

Geometry and Measure

R and P Probability

Algebra

Geometry and Measure

Number

Algebra

Algebra

Algebra

Real-life graphs, straight line graphs,  $y=mx+c$ . Plotting quadratics and cubics.

Similarity and congruence. Properties of shape, parallel lines, angle facts, angles in polygons. Pythagoras.

Single and combined events, two way tables and Venn diagrams.

Recognising, generating, find and use the nth term. Expressions and substitution. Expanding and factorising, changing the subject, inequalities

Trigonometry. Transformations.

Laws of indices, working with powers and roots. Standard form.

Use of scaling diagrams, percentage of amounts, increase, decrease, reverse, percentage profit/loss, direct and inverse proportion



Pythagoras' Theorem, similarity and congruence in 2D and 3D.

Probability

Number

Geometry and Measure

Algebra

Geometry and Measure

Number

Algebra

Algebra

Algebra

YEAR 9

Constructions

Polygons

Perimeter, area and Volume

Statistical Analysis

Statistical Representation

Percentages and Proportionality

Equations and Inequalities

Plot in all four quadrants, generate and plot coordinates from a rule, horizontal and vertical lines.

Co-ordinates and the Cartesian Plane

Perimeter and Area

Ratio and fractions

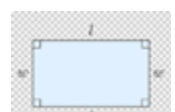
Transformations

Estimation and Rounding

Sequences

Linear and Real Life Graphs

Coordinates, plot, midpoints, gradient and  $y=mx+c$



Multiplicative relationships, ratio tables, double number lines, ratios as fractions, divide into given ratio, finding parts, fraction of an amount, 1:n and n:1.

Angles in parallel lines and in polygons, including proofs.

Understand and calculate averages

Constructing pictograms, bar charts, pie charts, scatter diagrams

Definitions, solving one-step, two-step, multi-step equations, reading, drawing and solving inequalities

Special sequences, arithmetic, geometric, term to term, position to term, nth term, including algebra

Form algebraic expressions, substitute, collecting like terms, expanding a single bracket using distributive law, factorising.

Algebraic Manipulation

Perimeter, area of rectangles, triangles, parallelograms, trapezia and compound shapes.

Invariance, reflections, translations (including with column vectors.) Rotations and enlargements.

Rounding to: whole numbers, decimal places and significant figures, estimating

Special sequences, arithmetic, geometric, term to term, position to term, nth term, including algebra

Formal written methods for all four operations, associative law, commutative law distributive law. BIDMAS and negative numbers.

Develop a love of Mathematics

Arithmetic with Fractions

Types of Numbers

Representations of fractions, simplifying fractions, equivalent fractions, ordering, mixed to improper and back. Four operations with fractions.

The Four Operations of Directed Numbers

Place Value and Rounding

SPARX INTRODUCTION

YEAR 7

SPARX INTRODUCTION

SPARX INTRODUCTION

SPARX INTRODUCTION

SPARX INTRODUCTION

SPARX INTRODUCTION



Multiples, factors, squares, cubes, roots, Using calculator, primes, prime factors, HCF and LCM

Comparing, recognising and ordering numbers. Using inequality signs, reading. Multiplying and dividing by powers of 10, rounding.

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