Curriculum Map : Mathematics

Topics

- **Algebra**
- **Geometry**
- **Number**
- **Ratio and Proportion**
- **Statistics**

FINISH

GCSE Qualification in Maths

Revision – Reactive curriculum.

Transforming Graphs – Translating graphs, reflecting graphs, stretching graphs.

Trigonometry – the sine rule, the cosine rule, the area of any triangle, solving in 3D, the ambiguous case, bearings.

Quadratics – Sequences, expanding brackets and factorising, solving, the quadratic formula.

Circles, Cylinders, Cones and Spheres – Areas of sectors and segments. Volume of a cylinder, cone, sphere and frustums. Length of an arc.

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Year 10
Bringing together mathematics studied earlier in the school to a point where many different areas intersect, developing problem solving and learning how to select the correct tool for the correct job. Developing thinking in each area of maths and introducing new ideas that allow more complex problems to be overcome.

Year 11
Introducing the most challenging topics – circle theorems, vectors and transforming graphs. Increased practice of selecting the correct tool for the problem, developing mathematical rigour.

Revision- Past papers and individual topics.

Vectors – Vector notation, vector arithmetic, parallel vectors, collinear points, solving geometric problems.

Circle Theorems – Radii and chords, tangents, applying circle theorems.

Displaying data – histograms and box plots

Trigonometry – sine, cosine and tangent, finding an angle, trigonometric graphs.

Bounds and Powers – Working out the bounds of a number and working with surds, fractional powers.

Graphical Solutions – Using y = mx + c, simultaneous equations, solving inequalities.

Constructions – Loci, triangles, bisectors and perpendiculars.

Ratio – Comparing two ratios, the unit ratio, sharing into a ratio.

Statistics – Cumulative frequency and box plots, drawing and interpreting histograms, interpreting quartiles and interquartile range.

Non-linear Graphs – Quadratic, cubic and reciprocal functions, solving graphically.

Fractions, Decimals, Percentage Ratio – Currency conversion, percentage increase and decrease, compound percentages.

Multiplicative Reasoning – Direct proportion, real life problems, inverse proportion, non-linear proportion.

Year 9
Developing the mathematical lexicon, using proof and rigor to solve problems, understanding links between algebra and graphs, being able to work in the abstract.

Power and Roots – Reciprocals, standard form, negative powers.

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Probability – Tree diagrams, basic and conditional probability, independent events, Venn diagrams and set notation.

Algebra – Inequalities, index laws, changing the subject, algebraic fractions.

Interpreting and Representing Data – Stem and leaf, frequency polygons, pie charts, time series, scatter graphs.

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Factors and Powers – Prime factor decomposition, laws of indices.

Year 8
Introducing new ideas that build on year 7 knowledge; the fundamental theorem of arithmetic, indices and index laws, the area and volume of a 3d shape, transformations of 2d shapes, including negative and fractional enlargements, use of mathematical tools, understanding probabilistic thinking.

Year 7
Revisiting and developing foundational knowledge to build upon over the next 4 years, ensuring that key skills of numeracy, algebra, proportional reasoning and geometric reasoning are in place to further develop mathematical thinking.

Understanding Algebra – Equations, functions and formulae, expanding and factorising, writing and solving.

Transformations – Reflection, rotation, translation, enlargement, combining.

Ratio – writing two numbers in a ratio, multiplying up a ratio, simplifying a ratio.

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3D Shapes – Plans and elevations, surface area and volume.

Decimals – Ordering, rounding, adding, subtracting, multiplying and dividing.

Sequences – arithmetic, geometric, nth term, Fibonacci.

Basic Probability – The language of chance, the likelihood of an event.

Measures – units, ratios, proportional reasoning, compound units.

Properties of Shapes – Types of polygon, angles in shapes, parallel lines and points.

Basic Number – Factors, multiples and primes, negatives, squares and roots.

Thinking Statistically – collecting, manipulating and displaying data.

Graphs – Linear graphs, the gradient, y = mx + c, perpendicular and parallel lines.

Probability – Estimating, experimental, mutually exclusive and diagrams.

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