Year 9 Mathematics

What your child will learn this year

Topics, in the order they are taught

	Topic	What it covers
1	**Properties of number**	Prime factors, highest common factors and lowest common multiples, and powers and roots.
2	**Percentages**	Percentage change, repeated change, and working back to an original amount.
3	**Area and volume**	Area, surface area and volume across a wider range of shapes and solids.
4	**Equations, inequalities and formulae**	Solving equations and inequalities, and rearranging a formula to make a different letter the subject.
5	**Fractions**	Calculating confidently with fractions in a range of contexts.
6	**Rates**	Speed, density, pressure and other compound measures, and the units they use.
7	**Standard form**	Calculating with very large and very small numbers written in standard form.
8	**Maths and money**	Wages, interest, bills, taxes and currency: using mathematics in financial situations.
9	**Straight line graphs**	Gradient and intercept, and finding the equation of a straight line.
10	**Ratio and proportion**	Direct and inverse proportion, and using ratio to solve multi-step problems.
11	**Constructions and congruence**	Constructing accurate diagrams with compasses, and identifying congruent shapes.
12	**Similarity**	Enlargement and similar shapes, and the scale factors that connect them.
13	**Algebraic manipulation**	Expanding and factorising more complex expressions, including quadratics.
14	**Pythagoras' theorem**	Finding a missing side in a right-angled triangle, and using it to solve problems.
15	**Non-linear graphs**	Curved graphs, including quadratics, and what their shape tells you.
16	**Sets and probability**	Venn diagrams, set notation, and the probability of combined events.
17	**Transformations**	Reflecting, rotating, translating and enlarging shapes, and describing those changes precisely.

Optional stretch and challenge

> Some classes work through the year's topics ahead of the rest. Where that happens, teachers draw on the topics below. These are optional: they are not required for this year, and no pupil is disadvantaged if their class does not reach them.

Topic	What it covers
Simultaneous equations	Solving two equations together, both graphically and algebraically.
Trigonometry	Using angles to find missing lengths in right-angled triangles.
Surds and exact answers	Leaving an answer in an exact form rather than rounding it.
Vectors	Describing movement and position using vectors.
Circle theorems	The angle rules inside circles.
Algebraic proof	Proving a statement is true for every number, not just the ones tested.

N.B. *Where a class is taught by more than one teacher, staff plan the sequence together so that each topic builds on what has already been covered. This sometimes means a topic is taught in a slightly different order from the one shown here. If you have any questions, your child's teacher will be happy to explain.*