Year 8 Mathematics

What your child will learn this year

Topics, in the order they are taught

	Topic	What it covers
1	**Ratio**	Comparing quantities, simplifying ratios and sharing an amount in a given ratio.
2	**Proportion and scale**	Direct proportion, best-value problems, and using scales on maps and scale drawings.
3	**Algebraic manipulation**	Expanding brackets, factorising, and working with powers in algebra.
4	**Coordinates and graphs**	Plotting points in all four quadrants, and drawing and reading straight line graphs.
5	**Multiplying and dividing fractions**	Calculating with fractions and mixed numbers, and solving problems that use them.
6	**Symmetry and reflection**	Lines of symmetry, rotational symmetry, and reflecting shapes accurately.
7	**Area, volume and density**	The area of two-dimensional shapes, the volume and surface area of solids, and problems involving density.
8	**Equations and inequalities**	Solving equations with brackets and unknowns on both sides, and representing inequalities.
9	**Percentages**	Percentage increase and decrease, and solving percentage problems using multipliers.
10	**Indices**	The laws of indices, and calculating with powers and roots.
11	**Standard form**	Writing very large and very small numbers compactly, and calculating with them.
12	**Interpreting and representing data**	Choosing and drawing suitable charts, and drawing conclusions from a set of data.
13	**Angles in parallel lines and polygons**	Angle facts in parallel lines, and the interior and exterior angles of polygons.
14	**Tables and probability**	Two-way tables, listing outcomes, and calculating the probability of an event.
15	**Circles**	The circumference and area of a circle, and the perimeter and area of parts of circles.
16	**Graphs and charts**	Pie charts, scatter graphs and line graphs, and describing the relationships they show.
17	**Sequences**	Generating and describing sequences, including finding a rule for any term.

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
Pythagoras' theorem	Finding a missing side in a right-angled triangle.
Simultaneous equations	Solving two equations together to find two unknown values.
Constructions and loci	Drawing accurate diagrams with compasses, and finding all the points that meet a condition.
Venn diagrams and set notation	Describing and combining groups of outcomes formally.
Similar shapes	Shapes of the same form but a different size, and the scale factors that link them.
Writing a mathematical proof	Explaining why something is always true, rather than true in one example.

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.*