



# Queen Elizabeth's Girls' School

*Educating Women of the Future*

## Maths Key Stage 3 Curriculum

	Topic/Big Question	Focus
Year 7	How does data influence others?	<b>Number skills</b> - Learners will work understand the use of the priority of operations, degree of accuracy and LCM and HCF <b>Analysing and displaying data</b> - Learners will learn about mean, median and mode. They will also be working on pictograms, bar charts and frequency tables.
	Could a world without algebra survive? Are there numbers big enough and small enough to measure everything?	<b>Expressions, functions and formulae</b> - Learners will understand the concept behind function machines, collect like terms and substitute values into given formulae <b>Decimals and measures</b> - Learners will be able to convert between metric units of length, mass and capacity as well as work out the perimeter and area of composite shapes.
	Are there different ways to represent the same number? How can you create a fair game?	<b>Fractions and percentages</b> - Learners will be able to simplify and work with fractions and find the percentage of an amount. <b>Probability</b> - Learners will be able to identify outcomes of an event, calculate probabilities whilst working with experimental data.
	Can we compare?	<b>Ratio and proportion</b> - Learners will be able to understand the relationship between ratio and proportion and solve problems. <b>Lines and angles</b> - Learners will be able to use ruler and protractors to measure and draw angles, draw triangles accurately. They will also be able to solve angle problems involving triangles and quadrilaterals.
	What do graphs tell us?	<b>Sequences and graphs</b> - Learners will be able to find patterns in a sequence, recognise both an arithmetic sequence as well as a geometric sequence. Learners will also be able to plot straight line graphs using a table of values.
	Is beauty mathematical?	<b>Transformations</b> - Learners will be able to recognise and carry out translations, reflections, rotations and enlargements.

	Topic/Big Question	Focus
Year 8	Can numbers lie?	<b>Number</b> - Learners will be able to use the divisibility rules and calculate using a combination of squares, square roots, cube, cube roots and brackets. They will also be able to use index notation and use prime factor decomposition to find the HCF and LCM of given numbers.
	How do we use 2D shapes to understand 3D shapes?	<b>Area and volume</b> - Learners will be able to derive and use the formula for the area of triangle, parallelogram and trapezium. They will also be able to calculate the volume and surface area of 3D shapes as well as solve problems in everyday contexts involving measures. <b>Statistics, graphs and charts</b> - Learners will be able to work with two way table, calculate mean from a frequency table, draw and interpret stem and leaf diagram and scatter graphs
	Is it possible to draw a journey?	<b>Expressions and equations</b> - Learners will be able to expand brackets, factorise expressions and find the inverse of a simple function. They will also be able to solve equations using the rebalancing method as well as via the function machines. <b>Real life graphs</b> - Learners will be able to draw and interpret conversion graphs and distance time graphs.
	Is there always a connection between the side lengths of a shape and the angles inside?	<b>Decimals and ratio</b> - Learners will be able to work with a degree of accuracy and divide a given quantity into three or more parts in a given ratio. <b>Lines and angles</b> - Learners will be able to identify and solve problems using the properties of angles in parallel and intersecting lines. They will also be able to work out the sizes of interior and exterior angles of polygon.
	What's the value in number?	<b>Calculating with fractions</b> - Learners will be able to add/subtract/multiply/divide fractions. They will also be able to the reciprocal of a number and use the four operations with mixed numbers. <b>Straight Line graphs</b> - Learners will be able to write the equation of straight line graphs in the form of $y = mx + c$ and plot straight line graphs and work out the gradient.
	What is equal?	<b>Percentages, decimals and fractions</b> - Learners will be able to express one number as a percentage of another when the units are different and solve percentage problems

	Topic/Big Question	Focus - Foundation
<b>Year 9</b>	Is a calculator better than a brain?	Integers & place value, Decimals, Indices, powers & roots
	Can a world survive without Algebra?	Factors, multiples & primes, Algebra - the basics, Expanding & factorising single brackets, Expressions & substitution into formulae
	What is the smartest/ most convenient way to display data?	Tables, Charts & graphs, Pie charts, Scatter graphs
	How do fractions relate to real life?	Fractions, Fractions, decimals & percentages, Percentages
	How many ways are there to solve an equation?	Equations, Inequalities, Sequences
	Are the side lengths of a shape and angles inside the shape connected?	Properties of shapes, Parallel lines, Angle facts, Interior & exterior angles of polygons, Statistics & sampling, Averages

	Topic/Big Question	Focus - Higher
<b>Year 9</b>	Is a calculator better than a brain?	Calculations, Checking & rounding, Indices, roots, reciprocals, hierarchy of operations, Factors, multiples & primes
	Can you always predict the next term in a sequence?	Standard form & surds, Algebra - the basics, Setting up, rearranging & solving equations, Sequences
	Can you make sense of information about trees in order to maximise the profits of a forestry company?	Averages & range, Representing & interpreting data, Scatter graphs
	Can you express every recurring decimal as a fraction?	Fractions, Percentages, Ratio & proportion
	How to work like an Egyptian?	Polygons, angles & parallel lines, Pythagoras' theorem & trigonometry
	What do graphs tell us?	Graphs - the basics & real-life graphs, Linear graphs & coordinate geometry