

Mathematics KS3

Curriculum Intent Statement

Inspiration and excellence are at the heart of everything we do. Our main aim is to inspire confidence in our students and stimulate their interest in Mathematics, both within the curriculum and the wider world. We hope that this in turn will spark a love of learning and an improved ability to model and solve problems, applying the Mathematical knowledge gained in lessons to a variety of different circumstances. We believe that this will enable our students, irrespective of background, to flourish and leave BVGS well-equipped for whatever they choose to do in life.



Our mathematics course is designed to enable pupils to:

- 1) Develop fluent knowledge, skills and understanding of mathematical methods and concepts
- 2) Acquire, select and apply mathematical techniques to solve problems
- 3) Reason mathematically, make deductions and inferences, and draw conclusions
- 4) Comprehend, interpret and communicate mathematical information in a variety of forms appropriate to the information and context.

Structure of the course

- 1) Number
- 2) Algebra
- 3) Ratio, proportion and rates of change
- 4) Geometry and measures
- 5) Statistics
- 6) Probability

Structure of assessment

Pupils are assessed every half term using written papers within their class. Following each assessment pupils are given time to review and reflect on their work and complete target work to help them to develop as independent learners.

Teaching and learning

In Mathematics, pupils are encouraged to ask questions and attempt various mathematical approaches to a variety of different problems in a safe and inspirational environment where there is no fear of failure. During lessons, pupils have the opportunity to work both independently and together in pairs or groups. Outside of lessons, pupils are encouraged to develop as independent learners by regularly revising and practising extra questions in addition to completing the set homework tasks.

KS3 Curriculum Map

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	Year 7	Year 8	Year 9
	Baseline = Non-Calc Test		
1	<u>Number</u> <ul style="list-style-type: none"> Mental & written calculations. Multiply and divide by 10, 100, 1000. Factors and multiples Fraction calculations Fraction, Decimal and Percentage equivalents. Module 1 = Non-Calc Test	<u>Number</u> <ul style="list-style-type: none"> Number properties, rounding and estimation. Working with powers of ten. Decimal calculations. Percentages change problems Module 1 = Non-Calc Test	<u>Number</u> <ul style="list-style-type: none"> Decimal calculations, inc recurring decimals. Estimation; upper & lower bounds. Indices & surds. Working with standard form. Repeated percentage change. Module 1 = Non-Calc Test
2	<u>Algebra</u> <ul style="list-style-type: none"> Using letter symbols. Using formulae. Solving equations. Coordinates & straight-line graphs. Module 2 = Non-Calc Test	<u>Algebra</u> <ul style="list-style-type: none"> Indices in algebra. Rearranging formulae. Curved graphs and real-life graphs. Module 2 = Non-Calc Test	<u>Algebra</u> <ul style="list-style-type: none"> Algebraic manipulation including double brackets. Rearrange complex formulae. Simultaneous equations. Linear inequalities. Module 2 = Non-Calc Test
3	<u>Geometry and Measure</u> <ul style="list-style-type: none"> Transformations & symmetry. Converting linear measures. Perimeter & area of triangles and quadrilaterals. Surface area & volume of cuboids. Simple angle rules. Module 3 = Non-Calc Test	<u>Statistics and Probability</u> <ul style="list-style-type: none"> Averages of grouped discrete data. Scatter graphs and correlation. Probability for two or more events. Using Venn diagrams for probability. Module 3 = Calc Test	<u>Algebra</u> <ul style="list-style-type: none"> Quadratic sequences. $y = mx + c$, parallel & perpendicular lines. Cubic, exponential & reciprocal graphs. Module 3 = Non-Calc Test
4	<u>Algebra</u> <ul style="list-style-type: none"> Linear sequences <u>Ratio and proportion</u> <ul style="list-style-type: none"> Simplifying & dividing in ratio. Proportions as fractions, decimals or percentages. Percentages of amount Percentage increase/decrease Module 4 = Non-Calc Test	<u>Algebra</u> <ul style="list-style-type: none"> Geometric and recursive sequences. Equations with fractions. <u>Geometry and Measure</u> <ul style="list-style-type: none"> Converting units of area and volume Surface area & volume of prisms Module 4 = Non-Calc Test	<u>Geometry and Measure</u> <ul style="list-style-type: none"> Transformations inc enlarge negative scale factor. Converting units of volume. Compound measures. Pythagoras' theorem. Trigonometry. Problems involving 3D shapes. Prove angle properties Arcs and sectors. Module 4 = Calc Test
5	<u>Probability & Statistics</u> <ul style="list-style-type: none"> Averages and range Drawing frequency tables, bar charts and pie charts. Probability scale and equally likely outcomes. Sorting with Venn diagrams <u>Geometry & Measure</u> <ul style="list-style-type: none"> Plans, elevations, and simple constructions. End of Year Exam (21 st June)	<u>Geometry</u> <ul style="list-style-type: none"> Parallel line and polygons. Combining transformations. Constructions and loci <u>Ratio and proportion</u> <ul style="list-style-type: none"> Ratio Problems. Comparing proportions. End of Year Exam (21 st June)	<u>Ratio and proportion</u> <ul style="list-style-type: none"> Ratio and proportion problems. Congruence & similarity. <u>Statistics and Probability</u> <ul style="list-style-type: none"> Estimate mean of grouped continuous data & code data. Interpret correlation. Cumulative frequency curves, frequency polygons & histograms. Compare data. Independent events; Venn & tree diagrams. End of Year Exam (21 st June)

KS3 Support and interventions

1. Record of Progress sheets in exercise books that tell students order of topics and where they can be found in course textbook/on www.kerboodle.com

2. Differentiation within lessons.

3. Parental contact.

4. Review lesson after every test to ensure all students know what the model solutions should look like.

5. Differentiated, individual target work completed by every student following every test.

6. Utilise websites to help your development such as:

- www.mymaths.co.uk
- www.corbettmaths.com
- www.mathsgenie.co.uk
- www.mathsmadeeasy.co.uk

Online activities and questions:

- www.bbc.co.uk/bitesize
- www.mymaths.co.uk
- www.mathsbot.com
- www.murderousmaths.co.uk/

Books for revision:

- CGP Key Stage 3 Mathematics Foundation Level - complete study and practice (for Year 7)
- CGP Key Stage 3 Mathematics Higher Level - complete study and practice (for Years 8 & 9)

or just for fun!

- Murderous Maths series by Kjartan Poskitt
- Alex's adventures in numberland by Alex Bellos
- Can you solve my problems? A casebook of ingenious, perplexing and totally satisfying puzzles by Alex Bellos
- So you think You've Got Problems? Surprising and rewarding puzzles to sharpen your mind by Alex Bellos