



SOUTH WILTS GRAMMAR SCHOOL

Year 8 Standards – Maths

Knowledge/skills	Working towards SWGS Standard for end of Year 8	Working at SWGS Standard for end of Year 8	Working beyond SWGS Standard for end of Year 8
	3-4 students on average per class will be working at this level	Most students will be working at this level.	5-6 students on average per class will be working at this level
Fluency	Recall and apply knowledge within the topic	Recall and apply knowledge across topics	Recall and apply knowledge rapidly and accurately
Reasoning	- Verbalise methods - Follow a line of enquiry	- Verbalise and explain methods and strategies - Use some mathematical language - Make predictions	- Develop an argument or proof using mathematical language - Make and test predictions
Problem solving	Starting to apply their mathematics to routine/non-routine problems	Breaking down problems into simpler steps	Apply to a variety of problems, persevere in seeking solutions
Number	- Understand & use place value for decimals, measures and integers - Order numbers (+ - dec & frac) - Use the 4 operations - Percentage of a quantity - Convert between %, dec, frac - Use approximation & rounding	- Calculation with all forms of rational numbers, including negatives - Recognise Standard Form - Priority of operations - Factors, multiples, primes, indices. - Rounding % increase & decrease, % change - Powers & roots	- Use of indices and standard form (large no's) - Solving problems using prime factorisation - Expressing errors caused by rounding - Percentages including repeated (compound) change - Simple & compound interest - Reverse %'s - Reciprocals - Leave an answer in terms of pi
Algebra	- Correctly use & interpret algebraic notation - Simplify algebraic expressions - Substitute into formulae - Draw and use linear graphs - Recognise linear sequences and starting to find the nth term - Solve simple linear equations	- Simplify and manipulate algebraic expressions including single brackets - Use formulae to draw linear graphs - Recognise $y = mx + c$ - Setting up & solving eqns (with brackets) - Confidently find the nth term of a linear sequence	- Model situations with algebraic expressions - Equations of parallel lines - Recognise quadratic sequences - Solve more complex equations (inc fraction) - Change the subject of formulae - Express an inequality - Draw quadratic graphs from a table of values - Create a distance-time graph





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	• Work with coordinates in all four quadrants	• Recognise an inequality • Re-arrange simple formulae • Interpret distance-time graphs	• Recognise geometric sequences & other sequences that arise
Ratio, Proportion and Rates of Change	• Express and interpret proportional relationships in a variety of forms • Divide a given quantity into parts	• Solve problems involving direct proportion • Direct proportion graphs • Recognise inverse proportion • Use scale factors	• Use map scales • Use compound units (eg s/d/t) • Solve problems involving inverse proportion
Geometry and Measures	• Derive and apply formulae for area and volume • Nets & surface area (cuboid) • Angle properties (Inc parallel lines) • Simple proofs • Properties of shapes • Reflection & rotation	• Notation for their simple proof • Standard constructions • Exterior and interior angle properties • Volume in triangular prism • Enlargement & translation • Area of a circle • Circumference calculations • Surface area of other prisms • Recognise congruent triangles • Standard units of measure • Recognise locus conditions	• Exterior and interior angle properties • Pythagoras' Theorem • Trigonometry in right angled triangles • Volume and SA in cylinder • Enlargement with fractional SF • Know the criteria for congruence of triangles • Converting metric units of area & volume • Use and apply Loci conditions
Probability	• Record & analyse frequency of outcomes • Use appropriate language and notation • Use a sample space diagram	• Recognise sets/unions/intersections using tables, grids & Venn diagrams • Mutually exclusive outcomes • Confidently generate & use a sample space diagram • Consider Theoretical probability v's relative frequency	• Work with sets/unions/intersections using tables, grids & Venn diagrams • Apply understanding of relative frequency • Frequency trees •
Statistics	• Describe, interpret and compare distributions	• Describe simple mathematical relationships (bivariate data) using scatter graphs	• Mean from grouped frequencies • Correlation • Two way tables





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	• Work with discrete, continuous and grouped data; and appropriate measures of central tendency and spread • Construct & interpret tables, charts & diagrams	• Mean from frequency table • Compare data	• Compare distributions
	Use a calculator and other technologies to calculate results accurately and then interpret them appropriately		

