

Maths Curriculum Mapping

Staged Scheme of Learning

The students follow a SoL based around a series of stages. Each stage covers the same topics but with increasing levels of challenge, deeper understanding, and more advanced concepts. The fact that every group is studying the same topic at (approximately) the same time eases set movements and facilitates pedagogical discussions within the department. The repetition of each stage means that key areas are regularly revisited before being extended, improving retention and confidence amongst the students.

	Year 7	Year 8	Year 9	Year 10	Year 11
NURTURE	NURTURE				
STAGE 1	LA	NURTURE			
STAGE 2	MA	LA	NURTURE		
STAGE 3	UA	MA	LA	NURTURE	
STAGE 4		UA	MA	LA	NURTURE
STAGE 5			UA	MA	LA
STAGE 6				UA	MA
STAGE 7					UA

The expectation is that the majority of pupils will move through the programmes of study at broadly the same pace. However, decisions about when to progress should always be based on the security of pupils' understanding and their readiness to progress to the next stage. Pupils who grasp concepts rapidly should be challenged through being offered rich and sophisticated problems before any acceleration through new content. Those who are not sufficiently fluent with earlier material should consolidate their understanding, including through additional practice, before moving on.

The three Assessment Objectives (Use and apply standard techniques; Reason, interpret and communicate Mathematically; Solve problems within mathematics and in other contexts) are covered within each topic. Students will move from practicing the standard technique and understanding the mathematical processes (AO1), discussing and explaining their reasoning when answering questions (AO2), and tackling questions set in unfamiliar contexts (AO3) at every stage and every topic.

Homeworks focus on consolidating core mathematical skills in Years 7 to 10. Year 11s prioritize exam question practice, working through a four-week cycle of a full GCSE paper (two weeks) and two 'first 50' papers (comprising of the first 50 marks from a GCSE paper, one Calculator then one Non-calculator).

- 1 Number Properties 1
- 2 Number Properties 2
- 3 Approximation
- 4 FDP
- 5 Ratio
- 6 Proportion and scale
- 7 Data
- 8 Probability
- 9 Algebra 1 (manipulation)
- 10 Algebra 2 (solving linear)
- 11 Sequences and graphs
- 12 Straight line graphs
- 13 Algebra 3 (quadratics)
- 14 G & M (angles)
- 15 G & M (area and volume)
- 16 Circles
- 17 Transformations
Pythagoras &
- 18 Trigonometry
- 19 Other graphs and calculus
- 20 Algebra 4 (functions)
- 21 Constructions and Loci



JUSTICE



COMPASSION

'You yourselves like living stones are being built up as a spiritual house.' 1 Peter 2.5

'Your present circumstances don't determine where you can go; they merely determine where you start.'



FORGIVENESS



TRUST

An example of how one of our Units (9. Algebra 1 - Manipulation) progresses through the stages.

KEY: Crossover (appears on both higher & foundation papers – Grades 4/5), AQA L2 Further Mathematics

Nurture	Stage 1	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6	Stage 7
Substitute positive integers into simple formula.	Construct and use simple expressions and formulae in words then symbols	Know the meanings of the words term, expression and equation.	Understand and use the vocabulary of expression, equation and term.	Substitute fractions & decimals into formulae & expressions (inc. fractions & brackets).	Expand double bracket to give quadratic expression of form x^2+bx+c .	Substitute into SDT/MVD formulae.	understand and use the factor theorem to factorise polynomials up to and including cubics (coefficient of x^3 no more than 1)
Use symbols where appropriate.	Know the meanings of the words term, expression and equation.	Coefficients written as fractions rather than decimals.	Substitute values into standard formulae (inc. areas, volumes, suvat equations & compound measures)	Expand single bracket with letter AND number outside bracket.	Expand double bracket to give quadratic expression of form ax^2+bx+c .	Factorise quadratics & difference of 2 squares (inc. those with the coefficient of $x^2 > 1$)	show that $x-a$ is a factor of the function $f(x)$ by checking that $f(a) = 0$
	Use and interpret algebraic notation.	Substitute numerical values into formulae and expressions.	Collect like terms. (including terms with powers)	Factorise single bracket with letter and number as common factor.	Substitute positive and negative integers into formulae and expressions including terms with indices.	Factorise expressions such as $12x^2 + xy - y^2$	Expand expressions of the form $(a+b)^n$, where n is a positive integer
	Substitute numerical values into formulae and expressions.	Collect like terms. Eg $a + a + b + 2b = 2a + 3b$.	Expand a single bracket with number OR letter on the outside of the bracket.	Expand double bracket to give quadratic expression.	Factorise a quadratic expression into two brackets	Expand more than two brackets	Use Pascal's triangle to determine coefficients of binomial expansions
		Use indices like $a \times a \times a = a^3$ and $b \times b = b^2$.	Simplify expressions involving sums & products (e.g. $4x \times 3 = 12a$)	Recognise the difference between an identity and an equation		Simplify expressions involving algebraic fractions.	
		Use a/b for $a \div b$.		Factorise a quadratic expression into two brackets			
		Simplify expressions involving sums & products (e.g. $4x \times 3 = 12a$)					



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An example of Topic 9, Algebra 1 (Manipulation) from Stage 6

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Archbishop Holgate's Maths Department - KS3 & 4 Programme of Study

STAGE 6 - Algebra 1 (Manipulation)

Prior Knowledge

RECAP - Expand double bracket to give quadratic expression of form x^2+bx+c .

RECAP - Factorise a quadratic expression into two brackets

Expand double bracket to give quadratic expression of form ax^2+bx+c .

Substitute positive and negative integers into formulae and expressions including terms with indices.

Stage 6 Objectives

Substitute into SDT/MVD formulae.

Factorise quadratics & difference of 2 squares(inc. those with the coefficient of $x^2 > 1$)

Factorise expressions such as $12x^2 + xy - y^2$

Expand more than two brackets

Simplify expressions involving algebraic fractions.

STARTER IDEAS

Collecting like terms

Expanding single brackets

Factorising single brackets

KEY WORDS

Expression, equation, term, factor, quadratic, factorise, simplify, index, linear.

KEY QUESTIONS & REASONING

What is special about $x^2 - 16$ compared to $x^2 - 20$? Can you factorise both?

How can you check your solution to equations?

[LINK TO ONLINE COLLABORATIVE SOW - EXTRA RESOURCES/CURRICULUM INFORMATION ETC....](#)

[LINK TO LESSON POWERPOINTS FOLDER](#)

[LINK TO STUDENT TRACKING SHEETS](#)



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