Curriculum Map – Maths – Year 9

Immanuel College
Church of England Academy

	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Key focus	• Properties of number • Percentages • Area and volume	• Equations, inequalities and formulae • Fractions • Rates • Standard form	• Maths and money • Straight line graphs • Ratio and proportion	• Constructions and congruence • Similarity • Algebraic manipulation	• Pythagoras' theorem • Non-linear graphs • Sets and probability	• Transformations • Simultaneous equations - optional • Trigonometry - optional • Revision and consolidation
Key knowledge and skills	**Number** • Classify integers, rational and irrational numbers • Use factors, multiples, prime factorisation, HCF and LCM • Solve percentage increase/decrease and reverse percentage problems **Geometry and measures** • Calculate area, surface area and volume of 2-D and 3-D shapes • Solve compound measure and geometry problems accurately	**Algebra** • Solve equations and inequalities, including unknowns on both sides • Substitute into and rearrange formulae • Form algebraic relationships from context **Number and rates** • Calculate with fractions • Solve speed, distance and time, density and flow problems • Use standard form in calculations and applications	**Financial maths** • Interpret bank statements and bills • Calculate simple and compound interest • Work with wages, tax, exchange rates, best buys, budgets and borrowing **Graphs and proportion** • Use y = mx + c and find equations of straight lines • Interpret gradient and intercept in context • Solve ratio, direct and inverse proportion problems	**Geometry** • Construct perpendicular and angle bisectors and triangles • Use loci and identify congruent figures/triangles • Use scale factors and similarity to find missing lengths **Algebra** • Expand brackets and pairs of binomials • Factorise expressions and use identities/conjectures	**Geometry and algebra** • Use Pythagoras' theorem to calculate missing sides and solve coordinate problems • Draw and interpret quadratic and other non-linear graphs **Probability** • Use set notation and Venn diagrams • Use relative frequency and expected outcomes • Calculate probabilities of combined events using diagrams	**Transformations** • Translate, rotate, reflect and enlarge shapes • Describe transformations precisely using vectors, centres and scale factors **Extension blocks** • Form and solve pairs of simultaneous equations • Use sine, cosine and tangent in right-angled triangles where appropriate **Consolidation** • Retrieve and connect key Year 9 knowledge in unfamiliar problems
Key words/ vocabulary	Integer, rational, irrational, prime factor, HCF, LCM, percentage, multiplier, reverse percentage, area, surface area, volume, prism, cylinder.	Equation, inequality, coefficient, variable, formula, subject, inverse operation, fraction, rate, speed, density, flow, standard form.	Credit, debit, interest, tax, VAT, wage, salary, budget, loan, exchange rate, gradient, intercept, linear, direct proportion, inverse proportion.	Locus, equidistant, bisector, congruent, corresponding, similarity, scale factor, enlarge, expression, expand, factorise, binomial, identity.	Hypotenuse, Pythagoras, quadratic, parabola, reciprocal, turning point, set, union, intersection, complement, relative frequency, expected outcome.	Translation, rotation, reflection, enlargement, vector, centre, scale factor, simultaneous equation, sine, cosine, tangent, opposite, adjacent, hypotenuse.
Assessment method	Topic assessments and formative checks.	Topic assessments and formative checks.	Topic assessments and formative checks.	Topic assessments and formative checks.	Topic assessments and formative checks.	Topic assessments; end-of-year summative assessment.
Wider links	Science - measurement and 3-D quantities. Finance - percentage change. Design - surface area and volume.	Science - formulae, speed and density. Geography - rates and scales. Computing - algebraic rules.	Personal development - financial literacy. Geography - exchange rates. Science - proportional relationships.	Construction and architecture - accurate drawing and similarity. Art - enlargement and scale.	Science - mechanics and graphical models. Computing - sets and logic.	Science - forces/vectors and trigonometric applications. Art and design - transformations.

"**Perseverance** produces **character,** and character, **hope**" (Romans 5:4)

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Enrichment opportunities	Maths Challenge problems; number investigations; independent Sparx practice.	Rate investigations; algebra problem solving; independent Sparx practice.	Bank of England / financial maths activities; straight-line graph investigations; independent Sparx practice.	Geometric construction challenge; algebra puzzles; BDAT Team Maths Challenge preparation.	Maths Challenge; graphing investigations; probability experiments.	BDAT Team Maths Challenge; University/STEM outreach; independent Sparx practice.
Careers links	Engineer; architect; accountant.	Scientist; engineer; logistics analyst.	Accountant; financial analyst; economist.	Architect; surveyor; CAD designer.	Engineer; data scientist; actuary.	Engineer; software engineer; architect; mathematician.

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