Mathematics KS3 Curriculum Mapping and Skills Criteria 2025-26

Curriculum Intent

At The Palmer Catholic Academy the Mathematics department we believe that mathematical knowledge and understanding is expandable and that every child can learn and appreciate Mathematics given the appropriate learning experiences. We are committed to developing student's curiosity about the subject and an appreciation of the beauty and power of Mathematics. Our aim is to encourage students to embrace and enjoy Mathematics and experience success in the subject at all levels. We treat students as individuals and through setting and differentiation within the groups we aim to provide a curriculum that is tailored to meet the needs of all students and abilities.

Our Mathematics curriculum will give students the opportunity to:

- **Become Fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time and repetition of key facts, so that students develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.**

- **Reason Mathematically by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language.**

- **Become independent thinkers who are able to be explore new concepts and apply these confidently**
- **Become confident Problem solvers by applying their mathematics to a variety of non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.**

As well as being fluent in the fundamentals of Mathematics, Problem solving and the application of Mathematics allows students to apply the mathematics learnt in real life situations and as a result preparing them better for life. Furthermore, problem solving helps them to develop their logical thinking skills which can be transferred across to many other aspects of their education.

- **Communicate confidently, justify, argue and prove using mathematical vocabulary**

Guided by our Catholic values, we see mathematics not just as a subject, but as a way to explore the order, beauty, and logic of God's creation. Through our maths curriculum, we strive to nurture not only capable mathematicians, but also compassionate, principled young people who will use their gifts in the service of others and the glory of God.

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In Year 7-9 the students are split into two half-year groups.
Students complete baseline assessments in Yr 7 and this is used to set students into differentiated groups. Setting is similar in Year 8 and 9, with four sets in each half-year group. Year 7, 8 and 9 have 5 lessons a fortnight. We use Pearson Maths progress text books with KS3 - Set 1 follows the depth course, sets 2 & 3 core and set 4 support. Students are tested regularly and this information, together with homework and classwork marks, is used to review the sets, with students being moved between sets as appropriate.

Students follow a Mastery approach to their learning with an emphasis on staying longer within topics before moving on, to fully immerse the student in a topic and to truly build solid understanding for KS4. The most gifted mathematicians are entered for the UKMT Junior/Intermediate Maths challenges and Junior/Pink Kangaroo challenges. Lower attainers are supported by having smaller class sizes and the disadvantaged/SEN students are prioritised by being offered boosters throughout the year to focus on gaps in their learning. Core life skills are incorporated in the frequent problem solving tasks as well as the financial maths and careers lessons that are embedded into the KS3 SOW.

	Autumn Term	Spring Term	Summer Term
Year 7	**UNIT 2: NUMBER SKILLS** ▪ Mental maths ▪ 4 operations with number ▪ Money and time ▪ Negative numbers ▪ Factors, multiples and primes ▪ Square numbers **UNIT 1: DATA** ▪ Mode, median and range ▪ Averages and comparing data ▪ Displaying data ▪ Grouping data ▪ Line graphs and bar charts	▪ Scales and measures ▪ Working with decimals ▪ Properties of 2D & 3D shapes ▪ TEACHING WITH MASTERY: Perimeter ▪ TEACHING WITH MASTERY: Area **UNIT 5: FRACTIONS & PERCENTAGES** ▪ Comparing fractions ▪ Simplifying fractions ▪ Working with fractions ▪ Fractions and decimals ▪ TEACHING WITH MASTERY: Understanding percentages ▪ TEACHING WITH MASTERY: Percentages of amounts	▪ Drawing angles accurately ▪ TEACHING WITH MASTERY: Calculating angles ▪ TEACHING WITH MASTERY: Angles in a triangle ▪ TEACHING WITH MASTERY: Quadrilaterals **UNIT 9: SEQUENCES AND GRAPHS** ▪ Solving linear equations ▪ Sequences ▪ Pattern sequences ▪ Coordinates and midpoints ▪ Extending sequences ▪ Straight line graphs ▪ Position to term rules

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	UNIT 3: EXPRESSIONS, FUNCTIONS & FORMULAE ▪ Functions ▪ Simplifying expressions ▪ Expanding brackets ▪ Substitution ▪ Writing expressions & formulae **UNIT 4: DECIMALS AND MEASURES** ▪ Decimals and rounding ▪ Length, mass and capacity	**UNIT 6: PROBABILITY** ▪ Language of probability ▪ Calculating probability ▪ Experimental probability ▪ Expected Outcomes **UNIT 7: RATIO AND PROPORTION** ▪ Direct proportion ▪ TEACHING WITH MASTERY: Writing ratios ▪ TEACHING WITH MASTERY: Using ratios ▪ TEACHING WITH MASTERY: Ratios, proportions and fractions ▪ Proportions and percentages **UNIT 8: LINES AND ANGLES** ▪ Measuring and drawing angles ▪ Lines, angles and triangles	**UNIT 10: TRANSFORMATIONS** ▪ Congruency and enlargements ▪ Symmetry ▪ Reflection ▪ Rotation ▪ Translations and combined transformations
	End of unit assessments and end of term assessments	**End of unit assessments and end of term assessments**	**End of unit assessments and end of term assessments**

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	Autumn Term	Spring Term	Summer Term
Year 8	**UNIT 1: NUMBER** ▪ Ordering decimals and rounding ▪ Calculations ▪ Divisibility and division ▪ Calculating with negative numbers ▪ Powers and roots ▪ Multiples and primes TEACHING WITH MASTERY **UNIT 2: AREA AND VOLUME** ▪ Area of a triangle ▪ Area of a parallelogram and trapezium ▪ Volume of cubes and cuboids ▪ 2D representations of 3D solids ▪ Surface area of cubes and cuboids ▪ Measures **UNIT 3: STATISTICS, GRAPHS AND CHARTS** ▪ Pie charts ▪ Using tables ▪ Stem and leaf diagrams ▪ Comparing data ▪ Scatter graphs ▪ Misleading graphs	**UNIT 4: EXPRESSIONS AND EQUATIONS** ▪ Algebraic powers ▪ Expressions and brackets ▪ Factorising expressions ▪ 1 step and 2 step equations **UNIT 5: REAL LIFE GRAPHS** ▪ Conversion graphs ▪ Distance time graphs ▪ Line graphs ▪ Real life graphs ▪ Curved graphs **UNIT 6: DECIMALS AND RATIO** ▪ Place value calculations ▪ Calculations with decimals ▪ Ratio and proportion with decimals TEACHING WITH MASTERY **UNIT 7: LINES AND ANGLES** ▪ Quadrilaterals ▪ Alternate angles and proof ▪ Angles in parallel lines ▪ Exterior and interior angles ▪ Solving geometric problems **UNIT 8: CALCULATIONS WITH FRACTIONS** ▪ Ordering fractions ▪ Adding , subtracting, multiplying and dividing fractions ▪ Calculating with mixed numbers	**UNIT 9 : STRAIGHT LINE GRAPHS** ▪ Direct proportion on graphs ▪ Gradients ▪ Equations of straight lines **UNIT 10: PERCENTAGES, DECIMALS AND FRACTIONS** ▪ Fractions and decimals ▪ Equivalent proportions ▪ TEACHING WITH MASTERY: Writing percentages ▪ TEACHING WITH MASTERY: Percentages of amounts **Probability** ▪ Probability of single events ▪ Exhaustive events and sample space diagrams
	End of unit assessments and end of term assessments	**End of unit assessments and end of term assessments**	**End of unit assessments and end of term assessments**

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	Autumn Term	Spring Term	Summer Term
Year 9	**UNIT 1: INDICES & STANDARD FORM** ▪ Indices ▪ Estimating Calculations ▪ More Indices ▪ Standard Form **UNIT 2: EQUATIONS & FORMULAE** ▪ Solving Equations ▪ Substitution ▪ Writing Formulae ▪ Rearranging Formulae ▪ Simplifying & factorising linear expressions ▪ Expanding Double Brackets ▪ Compound Measures **UNIT 3: DEALING WITH DATA** ▪ Planning a Survey ▪ Collecting Data ▪ Calculating Averages ▪ Displaying Data ▪ Interpreting and Comparing Data **UNIT 4: MULTIPLICATIVE REASONING** ▪ Reflection, Rotation & Translation ▪ Enlargement ▪ Negative & Fractional Scale Factors ▪ Arithmetic with Fractions ▪ Ratio ▪ Percentage Change ▪ Angle Facts and on Parallel Lines **UNIT 5: CONSTRUCTIONS** ▪ Using Scales ▪ Basic Constructions	▪ Constructing Triangles ▪ Using Accurate Scale Diagrams **UNIT 10: COMPARING SHAPES** ▪ Congruency and Similar Shapes ▪ Similar Triangles ▪ Pythagoras' Theorem ▪ The Tangent ratio ▪ The Sine ratio ▪ The Cosine ratio ▪ Using Trigonometry to find Angles **UNIT 6: SEQUENCES, INEQUALITIES, EQUATIONS & PROPORTION** ▪ *n*th term of Arithmetic Sequences ▪ Non-linear Sequences ▪ Inequalities ▪ Solving Equations ▪ Proportion ▪ Direct & Inverse Proportion **UNIT 7: CIRCLES, PYTHAGORAS & PRISMS** ▪ Circumference of a Circle ▪ Area of a Circle ▪ Prisms & Cylinders ▪ Errors & bounds **UNIT 8: GRAPHS** ▪ Using $y = mx + c$ ▪ Simultaneous Equations ▪ Graphs of Quadratics Functions	**UNIT 9: PROBABILITY** ▪ Mutually Exclusive Events ▪ Experimental & Theoretical Probability ▪ Sample Space Diagrams ▪ Two-way Tables ▪ Venn Diagrams Start **Bridging to GCSE** topics
	End of unit assessments and end of term assessments	**End of unit assessments and end of term assessments**	**End of unit assessments and end of term assessments**