

Mathematics

Scheme of Work map for all year groups
Mr Pentney (Subject Leader (Maths and Numeracy))



YEAR	MICHAELMAS TERM	LENT TERM	TRINITY TERM			
7	<p>42 hours</p> <p>Unit 1 (Algebra 1) – All in order</p> <p>Multiples, square and triangle numbers</p> <p>Number patterns</p> <p>Terms of a sequence</p> <p>Functions and mappings</p> <p>Letters and unknowns</p> <p>Patterns and sequences</p> <p>Handshakes investigation</p> <p>Unit 2 (Number 1) – Know your numbers</p> <p>Place value</p> <p>Addition and subtraction</p> <p>Positive and negative number</p> <p>Decimals</p> <p>Square numbers and multiplication</p> <p>Using a calculator</p> <p>Unit 3 (Geometry and measures 1) – Sizing up</p> <p>Mission to Mars</p> <p>Measurement</p> <p>Perimeter</p> <p>Area of rectangles</p>	<p>42 Hours</p> <p>Unit 5 (Handling data 1) – More than the average</p> <p>Averages</p> <p>Extracting data</p> <p>Interpreting graphs</p> <p>Generating sequences using rules</p> <p>Coordinates</p> <p>Straight line graphs</p> <p>Probability in words</p> <p>Probability in numbers</p> <p>Mathematician, get me out of here!</p> <p>Unit 6 (Algebra 2) – Formula one</p> <p>Writing expressions</p> <p>Order of operations</p> <p>Simplifying expressions</p> <p>Substituting into formulae</p> <p>Deriving formulae</p> <p>Perimeters</p> <p>Unit 7 (Geometry and measures 2) – Between the lines</p> <p>Angles and lines</p> <p>Properties of triangles and quadrilaterals</p> <p>Using coordinates</p>	<p>36 hours</p> <p>Unit 8 (Handling data 2) – Get the facts</p> <p>Planning data collection</p> <p>Collecting data</p> <p>Displaying data</p> <p>Bar charts</p> <p>Pie charts</p> <p>Unit 9 (Number 3) – Work it out</p> <p>Measures</p> <p>Mental methods</p> <p>Endangered island</p> <p>Rounding</p> <p>Written multiplication</p> <p>Multiplying decimals</p> <p>Written division</p> <p>More on order of operations</p> <p>Improve your stock car!</p> <p>Unit 10 (Algebra 3) – Algebra up close</p> <p>Multiples and factors</p> <p>Generating sequences</p> <p>Generating sequences using rules</p> <p>Coordinates</p>	<p>30 hours</p> <p>Unit 11 (Geometry and measures) – Taking a different angle</p> <p>Reflection symmetry</p> <p>Reflection and translation</p> <p>Shapes and angle rules</p> <p>Drawing 2-D and 3-D shapes</p> <p>Constructing triangles</p> <p>Design a game</p> <p>Unit 12 (Number 4) – More, less or the same?</p> <p>Calculating fractions</p> <p>Fractions, decimals and percentages</p> <p>Percentages of amounts</p> <p>Proportion</p> <p>Ratio</p> <p>What's cooking?</p> <p>Unit 13 (Algebra 4) – Express yourself</p> <p>Brackets blast-off</p>	<p>36 hours</p> <p>Unit 14 (Geometry and measures 4) – Shape up</p> <p>Forming shapes with triangles</p> <p>Translations</p> <p>Reflecting shapes</p> <p>Build a monster trap</p> <p>Combining transformations</p> <p>Problem solving</p> <p>Transformations on the move</p> <p>Unit 15 (Handling data 3) – Statistics sorted</p> <p>Probability and outcomes</p> <p>Sample space diagrams</p> <p>Experimental probability</p> <p>More on displaying data</p> <p>Interpreting charts and graphs</p> <p>Statistics</p> <p>Collecting the right data</p> <p>Statistical enquiry</p> <p>The KEO project</p> <p>Unit 16 (Number 5) – Number crunching</p>	<p>42 hours</p> <p>Unit 17 (Algebra 5) – Algebra rules</p> <p>Finding terms in a sequence</p> <p>More functions and mappings</p> <p>More coordinate</p> <p>Plotting real-life graphs</p> <p>Using real-life graphs</p> <p>Using formulae</p> <p>More deriving formulae</p> <p>Using and solving equations</p> <p>Games and entertainment</p> <p>Unit 18 (Geometry and measures 5) – Getting into shape</p> <p>Building shapes using triangles</p> <p>Using ICT to understand reflection</p> <p>Understanding triangles and quadrilateral</p> <p>Cubes and other 3-D shapes</p> <p>Constructing 3-D shapes</p> <p>Angles, triangles and pyramids</p> <p>2-D puzzles</p> <p>Heart maths</p> <p>End of term tests and</p>

Beccles Free School - Scheme Of Work Map

	<p>Unit 4 (Number 2) – Part and parcel</p> <p>Fractions</p> <p>Equivalent fractions and simplifying</p> <p>Fractions of amounts</p> <p>Percentages</p> <p>Finding a percentage of an amount</p> <p>Mental calculation</p>	<p>Go cross-country</p>	<p>Straight line graph</p> <p>Maps and coordinates</p>	<p>More simplifying expressions</p> <p>Writing and solving one-step equations</p> <p>Solving and checking two-step equations</p> <p>Number tricks</p>	<p>More addition and subtraction</p> <p>More multiples and factors</p> <p>Factors, multiples and prime</p> <p>More multiplication</p> <p>More division</p> <p>Equivalent fractions, decimals and percentages</p> <p>Fractions cup final at Wembley!</p> <p>Calculations with percentages</p> <p>Egyptian mathematics</p>	<p>mark schemes</p> <ul style="list-style-type: none"> •
<p>8</p>	<p>35 hours</p> <p>Unit 1 (Algebra 1) – Pattern perfect</p> <p>Sequences</p> <p>Generating sequences</p> <p>More sequences</p> <p>Function machines</p> <p>Expressions and mappings</p> <p>Constructing expressions</p> <p>Swimming pool investigation</p> <p>Unit 2 (Number 1) – Number knowledge</p> <p>Decimal know-how</p> <p>Negative numbers</p> <p>Addition and subtraction</p> <p>Multiplication</p> <p>Squares and square roots</p> <p>Division</p> <p>Animating Shaun</p>	<p>35 hours</p> <p>Unit 4 (Number 2) – Bit parts</p> <p>Fraction</p> <p>Adding and subtracting fractions</p> <p>Improper fractions and mixed numbers</p> <p>Multiplying and dividing with fractions</p> <p>Fractions, decimals and percentages</p> <p>Internet shop</p> <p>Improving health and fitness</p> <p>Unit 5 (Handling data 1) – Diving into data</p> <p>Averages</p> <p>Charts 1</p> <p>Charts 2</p> <p>Probability</p> <p>Experimental probability</p> <p>All for charity</p> <p>Money matters</p>	<p>30 hours</p> <p>Unit 7 (Geometry and measures 2) – Whose line is it anyway?</p> <p>Lines and angles</p> <p>Angle rules</p> <p>Coordinates</p> <p>Truss me!</p> <p>Unit 8 (Handling data 2) – Data delights</p> <p>Planning data collection</p> <p>Collecting data</p> <p>Interpreting charts 110</p> <p>Pie charts and line graphs</p> <p>What are you watching?</p> <p>Unit 9 (Number 3) – Operations overload</p> <p>Place value and rounding whole numbers</p> <p>Rounding and ordering decimals</p>	<p>25 hours</p> <p>Unit 10 (Algebra 3) – All about algebra</p> <p>Position-to-term rule</p> <p>Describing the nth term</p> <p>Functions and mappings</p> <p>Coordinates and straight-line graphs</p> <p>Coordinates and straight-line graphs</p> <p>Cell division</p> <p>Unit 11 (Geometry and measures) Twists and turns</p> <p>Accurate angles</p> <p>More constructions</p> <p>Blake Hunter</p> <p>Geometry in practice</p> <p>Bearings</p> <p>Map maker</p>	<p>30 hours</p> <p>Unit 13 (Algebra 4) – Balancing act</p> <p>Solving simple equations</p> <p>Solving more complex equations</p> <p>Constructing and solving equations</p> <p>Equations quest</p> <p>Ferry project</p> <p>Unit 14 (Geometry and measures 4) – Shape makeover</p> <p>Translation and reflection</p> <p>Rotation</p> <p>Symmetry</p> <p>Combining transformations</p> <p>Enlargement</p> <p>Problem solving</p> <p>Transformations puzzle</p> <p>Unit 15 (Handling data 3) –</p>	<p>35 hours</p> <p>Unit 16 (Number 5) – Safety in numbers</p> <p>Powers and roots</p> <p>Powers and roots on a calculation.</p> <p>Multiples, factors and primes</p> <p>LCM, HCF and primes, Solving fraction problems</p> <p>Calculations in problem solving</p> <p>Fractions on a calculator</p> <p>Multiplication and division problems</p> <p>Calculator or bust!</p> <p>Unit 17 (Algebra 5) – The return of algebra</p> <p>Sequences and finding the nth term</p> <p>More equations</p> <p>Using formulae</p> <p>Graphs in all four quadrants</p> <p>Winter Olympics</p> <p>Real-life graphs</p> <p>Distance-time graphs</p>

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	<p>Unit 3 (Geometry and measures 1) – Made to measure</p> <p>Perimeter</p> <p>Area</p> <p>Area of triangles, parallelograms and trapeziums</p> <p>Measure, measuring and measurements</p> <p>Flooring design</p>	<p>Unit 6 (Algebra 2) – Forming formulae</p> <p>Mappings and expressions</p> <p>Powers</p> <p>Using brackets</p> <p>Substituting into formulae</p> <p>Deriving formulae</p> <p>Travelling to the USA</p>	<p>Measure</p> <p>Mental methods</p> <p>Written multiplication</p> <p>Written division</p> <p>Estimating and order of operations</p> <p>Using a calculator 132</p> <p>Running a small business</p>	<p>Unit 12 (Number 4) – Put things in proportion</p> <p>Percentage</p> <p>Ratio</p> <p>Proportion</p> <p>More ratio and proportion</p> <p>Solving ratio and proportion problems</p> <p>Interior decorating training</p>	<p>Investigating information</p> <p>Finding averages</p> <p>Drawing and interpreting graphs</p> <p>Comparing distributions</p> <p>Reporting the facts</p> <p>Data in tables and diagrams</p> <p>Scatter graphs</p> <p>Probability revisited</p> <p>Listing outcomes</p> <p>Planning a party</p>	<p>Graphs and direct proportion</p> <p>Graph your life</p> <p>Unit 18 (Geometry and measures 5) – In good shape</p> <p>Constructions</p> <p>Drawing 3-D shapes</p> <p>Nets of cuboids</p> <p>More nets</p> <p>Surface area</p> <p>Volume</p> <p>Imagery</p> <p>Heart Maths</p>
9	<p>28 hours Unit 1 (Number/Algebra 1) – Getting things in order</p> <p>Using negative numbers</p> <p>Indices and powers</p> <p>Prime factor decomposition</p> <p>Sequences</p> <p>Generating sequences using rules</p> <p>Awards ceremony</p> <p>Break the bank</p> <p>Unit 2 (Geometry and measures 1) – Get in line</p> <p>Paper planes</p> <p>Angles and proof</p> <p>Constructing triangles</p> <p>Special quadrilaterals</p> <p>More constructions</p> <p>Angles in polygons</p> <p>Puzzle time</p>	<p>28 hours Unit 4 (Number 2) – Look the part</p> <p>Fractions</p> <p>Adding and subtracting fractions</p> <p>Multiplying and dividing fractions</p> <p>Working with percentages</p> <p>Fractions, decimals and percentages</p> <p>Mental methods 1</p> <p>1000 years apart</p> <p>Unit 5 (Algebra 2) – Function frenzy</p> <p>Functions and mappings</p> <p>More functions and mappings</p> <p>Plotting and recognising linear functions</p> <p>Understanding linear functions</p> <p>Distance–time and other real-life graphs</p> <p>Interpreting real-life graphs</p> <p>Where have all the fish gone?</p> <p>Unit 6 (Geometry and measures 2) – Measure up</p>	<p>24 hours Unit 7 (Algebra 3) – Into the unknown</p> <p>Using letters to communicate mathematically</p> <p>From arithmetic to algebraic operations</p> <p>Understanding powers</p> <p>Understanding brackets</p> <p>More brackets</p> <p>Developing and using formulae</p> <p>New planets!</p> <p>Unit 8 (Number 3) – Clever calculations</p> <p>Addition and subtraction</p> <p>Powers of 10</p> <p>Rounding and ordering</p> <p>Mental methods 2</p> <p>Powers and roots</p> <p>Written multiplication</p> <p>Written division</p> <p>Estimates and checking</p> <p>Using a calculator</p> <p>Number puzzles</p>	<p>20 hours Unit 10 (Algebra 4) – Under construction</p> <p>Solving equations 1</p> <p>Solving equations 2</p> <p>Equations with brackets</p> <p>Using formulae</p> <p>Constructing formulae</p> <p>Egyptian problems</p> <p>Unit 11 (Statistics 2) – Dealing with data</p> <p>Collecting data</p> <p>Interpreting data</p> <p>Bar charts</p> <p>Line graphs</p> <p>Pie charts</p> <p>Glastonstock</p> <p>The mathematical boat show</p> <p>Unit 12 (Number</p>	<p>24 hours Unit 13 (Algebra 5) – The plot thickens</p> <p>More graphs</p> <p>Other functions and graphs</p> <p>Direct proportion</p> <p>Solving problems involving direct proportion</p> <p>Constructing and solving equation</p> <p>Writing and solving complex linear equations</p> <p>Scrapyard skittles</p> <p>Applying mathematics and solving problems</p> <p>Creating a game world</p> <p>Unit 14 (Solving problems) – Putting things in proportion</p> <p>Proportion and ratio</p> <p>Simplifying ratio</p> <p>Ratio problems</p> <p>Logic and proofs</p> <p>Problem solving</p> <p>More problem solving</p>	<p>28 hours Unit 15 (Geometry and measures 4) – Back to the drawing board</p> <p>Shapes</p> <p>Plans and elevations</p> <p>Nets and constructions</p> <p>Maps and scale drawings</p> <p>Bearings</p> <p>Coordinates</p> <p>Loci</p> <p>Beyond Mars</p> <p>Solving problems 2</p> <p>Postulates revisited</p> <p>Unit 16 (Statistics 3) – Statistically speaking</p> <p>Frequency tables</p> <p>Collecting data and calculating statistics</p> <p>Frequency diagrams</p> <p>Interpreting graphs</p> <p>Comparing sets of data</p> <p>Misleading graphs</p>

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	<p>Unit 3 (Statistics 1) – Definitely maybe</p> <p>What are your chances? Representing probability It all adds up to 1 Experimental probability Can you trust experimental probability? The best holiday ever – probably Transport events</p>	<p>Units Area and perimeter Circles Surface area Volume Solving problems 1 Tank dimensions</p>	<p>Unit 9 (Geometry and measures 3) – Tons of transformations</p> <p>Symmetry and congruence Combining transformations Ratio Solving problems with proportion Enlargement More enlargement A crop of transformations</p>	<p>4) – Number know-how</p> <p>More fractions Multiplying and dividing Order of operations Written and mental methods of calculation Metric measures Using a calculator to solve problems Nursing calculations</p>	<p>A beautiful ratio</p>	<p>Experimental probability Sunny or windy or both? Heart maths Tests (half-term and end-of-term)</p>
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Michaelmas1
 Michaelmas2
 Lent1
 Lent2
 Trinity1
 Trinity2

The scheme of work is designed to be an interactive, working and developing document which will grow with the department to be a structured guide and resource bank to achieve:

- Academic achievement;
- High expectations for every student from every starting point;
- High levels of progress over KS3 and 4;
- Inclusive, differentiated and personalised pathways and pedagogical practice;
- Exciting, stimulating and inspiring activities;
- Literacy and numeracy components throughout;
- Spiritual, Moral, Social and Cultural ('SMSC') considerations throughout;
- Practical, experiential learning for learning and progress;

To use the interactive parts of the scheme of work press "Ctrl" and click on the blue and underlined sections of the scheme. These link to lesson plans, guides, policies, rich resources and assessment.

Mental maths and numeracy: These sections in the scheme of work are designed to consolidate and allow Students to recall mental numeracy. These should be used throughout the term in starters and appropriate lessons.

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Time - The number of hours recommended throughout the scheme is a guide. Students' progress is priority so each term has been given extra hours for assessment, creative and enriching activities.

Literacy- Every member of the department will need to include literacy in their lessons. Key words have been highlighted (red) in the SOW for Students to know and understand their meaning. Students need to practice understanding of exam questions and be able to express understanding through written and verbal communication. The SOW incorporates resources for individual, paired and group work to allow many opportunities to communicate. ([How to incorporate literacy in maths lessons](#))

Differentiation- Support, Core and Extension are used throughout the scheme to extend Students and aim for high levels of progress.

Assessment opportunities are given each half term to assess Students understanding. The tests are hyperlinked throughout the SOW.