



# CHJS Curriculum Progression for Mathematics



*Let your light shine (Matthew 5:16)*

In Mathematics, children are encouraged to let their light shine by taking delight in learning knowledge which can be applied to God's wonderful world; not only while at Church Hill C of E Junior School but as pupils transition to secondary school and adult life. Pupils will acquire knowledge which can be applied across the curriculum to inquire, debate and problem solve. Through our Mathematics lesson at Church Hill C of E Junior School, we encourage pupils to learn Christian values including courage, responsibility and tolerance.

| Substantive Knowledge  | Year 3   | Year 4  | Year 5  | Year 6  |
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| Please see White Rose Maths scheme of learning: <a href="#">Maths resources for teachers   White Rose Education</a>                            |  |   |   |   |
| Disciplinary Knowledge   | Year 3   | Year 4  | Year 5  | Year 6  |
| Please see White Rose Maths scheme of learning: <a href="#">Maths resources for teachers   White Rose Education</a>                            |  |   |   |   |
| <b>Vocabulary</b><br>(build upon previous year groups: e.g. ones, tens hundreds is applicable to all years but is first introduced in Year 3). | <b>Number</b><br>number<br>numeral<br>zero<br>how many...?<br>equal to<br>equivalent to<br>more, less<br>odd, even<br>multiple of<br>factor of<br>predict<br>pattern | <b>Number</b><br>thousand, ten thousand,<br>hundred thousand, million<br>sequence<br>relationship<br>Roman numerals<br>integer, positive, negative,<br>above/ below zero, minus,<br>negative numbers<br><b>Addition and subtraction</b><br>inverse<br><b>Multiplication and division</b><br>inverse | <b>Number</b><br>factor pair<br>formula<br>divisibility<br>square number prime<br>number<br>ascending/descending order<br><b>Fractions (including decimals and percentages)</b><br>proper/improper fraction<br>equivalent, reduced to,<br>cancel<br>percentage, per cent, % | <b>Number</b><br>factorise<br>prime factor<br>digit sum<br><b>Algebra</b><br>formulae<br>equation<br>unknown<br><b>Measurement</b><br>circumference<br><b>Statistics</b><br>pie chart<br>mean, mode, median |

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|  | <p>&gt; greater than<br/>&lt; less than</p> <p><b>Place value</b><br/>ones, tens, hundreds<br/>digit<br/>exchange<br/>fewer, smaller, less<br/>more, larger, bigger, greater<br/>order<br/>estimate<br/>round up, round down</p> <p><b>Addition and subtraction</b><br/>add, more, and<br/>make, sum, total<br/>take away, less<br/>difference between<br/>equals<br/>is the same as<br/>number bonds/ pair/ facts<br/>missing number<br/>column<br/>boundary</p> <p><b>Multiplication and division</b><br/>multiple, factor<br/>groups of<br/>times<br/>product<br/>repeated addition<br/>sharing, share equally<br/>doubling, halving<br/>array<br/>row, column<br/>number patterns</p> | <p>square, squared<br/>cube, cubed</p> <p><b>Fractions (including decimals)</b><br/>hundredths<br/>decimal, decimal, decimal<br/>point</p> <p><b>Measurement</b><br/>unit of measure</p> <p><b>Time</b><br/>timetable<br/>arrive, depart</p> <p><b>Geometry</b><br/>oblong<br/>rectilinear<br/>equilateral triangle,<br/>isosceles triangle, scalene<br/>triangle<br/>heptagon, parallelogram,<br/>rhombus, trapezium<br/>polygon<br/>translate, translation</p> | <p><b>Measurement</b><br/>imperial, metric<br/>square metre (m<sup>2</sup>), square<br/>millimetre (mm<sup>2</sup>)</p> <p><b>Money</b><br/>discount, currency</p> <p><b>Geometry</b><br/>radius, diameter<br/>axis of symmetry<br/>x-axis, y-axis, quadrant<br/>coordinates</p> <p><b>Position and direction</b><br/>protractor</p> |  |
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|  | <p>multiplication table</p> <p><b>Fractions</b><br/>fraction<br/>fraction equivalent<br/>parts of a whole<br/>numerator, denominator<br/>half, quarter<br/>thirds, fifths</p> <p><b>Measure</b><br/>length<br/>millimetre, centimetre,<br/>metre, kilometre, mile<br/>length, height, width, depth<br/>perimeter<br/>area, cm<sup>2</sup><br/>weigh<br/>kilogram, gram<br/>heavy, light<br/>litre<br/>capacity, volume</p> <p><b>Time</b><br/>hour<br/>o'clock, half past, quarter<br/>past, quarter to<br/>am, pm<br/>minute<br/>Roman numerals</p> <p><b>Geometry</b><br/>corner, side point, pointed<br/>rectangle (including square),<br/>rectangular circle, circular<br/>triangle, triangular<br/>pentagon, pentagonal</p> |  |  |  |
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|  | <p>hexagon, hexagonal<br/>octagon, octagonal<br/>quadrilateral right-angled<br/>parallel, perpendicular<br/>face, edge, vertex, vertices<br/>cube, cuboid pyramid<br/>sphere, hemisphere cone<br/>cylinder prism, triangular<br/>prism<br/>symmetry<br/>reflect</p> <p><b>Position and direction</b><br/>whole turn, half turn,<br/>quarter turn, three-quarter<br/>turn rotate, rotation angle,<br/>is a greater/smaller angle<br/>than degree right angle<br/>acute angle obtuse angle</p> <p><b>Statistics</b><br/>count, tally, sort, vote<br/>survey, questionnaire, data<br/>graph, block graph,<br/>pictogram represent group,<br/>set list, table, chart, bar<br/>chart, frequency table<br/>Carroll diagram, Venn<br/>diagram label, title, axis,<br/>axes diagram most popular,<br/>most common least<br/>popular, least common</p> |  |  |  |
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| <p><b>Cross-curricular reading</b></p> | <p><b>Available for independent reading in the library:</b><br/> On a Beam of Light: A Story of Albert Einstein (Science)<br/> Maths Adventures (Science)<br/> Nothing Stopped Sophie: The Story of Unshakeable Mathematician Sophie Germain Hardcover<br/> Wild Fibonacci: Nature's Secret Code Revealed (Science)<br/> <b>Recommended for Year 6: WWII Codebreakers (Guided reading)</b></p>   |   |   |   |
| <p><b>Cross-curricular links</b></p>   | <p><b>Cycle A</b><br/> Recording results for scientific experiments (Science)</p>  | <p><b>Cycle B</b><br/> Recording results for scientific experiments (Science)<br/> Mapping skills (Geography)<br/> Anglo-Saxon cooking (DT)</p> | <p>Recording results for scientific experiments (Science)<br/> Numbers to 41 (French)</p> | <p>Enterprise challenge<br/> Recording results for scientific experiments (Science)<br/> WW2 Codebreakers (History/ Guided reading)<br/> Rationing and carrot cookies (History/ DT)<br/> The Golden Age of Baghdad 900AD (History)<br/> Islamic patterns including symmetry (History/ Art)<br/> Potato cakes (DT)</p> |
| <p><b>Christian Values</b></p>         | <p><b>Courage</b><br/> For pupils to be confident mathematicians, they must be willing to grapple through mistakes, take risks in their learning and try again when things don't work out. Teaching staff will encourage through their classroom ethos, including following the Church Hill C of E Junior School positive rewards policy.</p> <p><b>Fairness</b><br/> Staff will encourage pupils to share their ideas to support the learning of their peers. All pupils will be given the opportunity to contribute to lessons (all voices must be heard), access support including the use of concrete and pictorial representations, pre-teach to support lower attaining learners and follow up intervention if needed.</p> <p><b>Kindness</b><br/> All children will be educated with kindness and respect. Teaching staff will provide opportunities for mathematical decision-making by knowing each individual child, being aware of how they learn and their learning needs. This enables teaching staff to guide their next small step of progress.</p> |   |   |   |

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|                                     | <p><b>Koinonia</b><br/>Mathematics lessons will use shared discussion, useful feedback and positive comments about pupil's willingness to contribute, which encourages successful and secure mathematicians. By working as a team alongside peers and teaching staff, pupils will become mathematicians who are positive and confident about the subject and its application across the curriculum.</p> <p><b>Responsibility</b><br/>For teaching staff, they will understand when to offer help and assistance whilst also respecting the wish of pupils to explain their thinking. Through the mastery approach to learning, pupils are enabled to take responsibility for their own learning.</p> <p><b>Thankfulness</b><br/>Teaching staff will model exemplary attitudes to learning for all pupils, encouraging pupils to "have a go" and understand that mistakes and unpicking misconceptions is a crucial part of the learning journey.</p> <p><b>Truthfulness</b><br/>Pupils will be taught that mistakes and correcting misconceptions is one of the crucial parts of any learning journey in mathematics. Mathematics is a vehicle to understand the world around you and the discovery of truth.</p> |
| <p><b>Spiritual Development</b></p> | <p>We promote a sense of inquiry in mathematics. Pupils begin by learning and understanding the number system which leads to an appreciation of infinity and nothing; pattern and order. Through pattern spotting, pupils will then be able to explain shape and regularity. Pupils are encouraged to reason to explain whether something is true, how certain it is and the likelihood of an event happening. At Church Hill we strive for pupils to experience the wonder of number, formulae and equations and appreciate that mathematics can be used to explain the world we live, and wider space and time.</p>   |