**CJS Year 6 Maths overview**

Autumn 1

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| **Week 1** | **Week 2** | **Week 3** | **Week 4** | **Week 5** | **Week 6** | **Week 7** | **Week 8** |
| **Place value**   * Partition 6 and 7 digit numbers into MHThTThThHTO (counters, bar model). * Partition 6 and 7 digit numbers in different ways (counters, bar model). * Solve balancing equations with partitioning numbers in different ways. * Position of MHThTThThHTO on a number line with benchmarks labelled. * Position of MHThTThThHTO on a number line with only two benchmarks * Position of the same MHThTThThHTO on differently benchmarked number lines.   **Counting**   * Counting in 100000s from any number. * Adding / subtracting O, T, H, Th, TTh, HThs crossing boundaries by using counters on a place value grid and exchanging.   **Comparing and ordering**   * Saying which is bigger / smaller out of two MHThTThThHTO numbers, represented in different ways (concrete, pictorial and abstract). * Using < and > to show the relative size of two MHThTThThHTO numbers. * Saying which is bigger / smaller out of three+ MHThTThThHTO numbers represented in different ways (concrete, pictorial and abstract).   **Rounding**   * Say which multiples of O, T, H, Th, TTh, HTh and M a number lies between. * Place numbers between multiples of O, T, H, Th, TTh, HTh and M on a number line. * Round numbers to the nearest T, H, Th, TTh, HTh and M. * Say which numbers could have been rounded to a given multiple of T, H, Th, TTh, HTh and M. * Say all possibilities of a number that could have been rounded to a given multiple of 10. * Say the biggest and smallest possible number that could have been rounded to a given multiple of H, Th, TTh, HTh and M. | | **Four operations**   * Given the whole and the difference between two parts, work out the value of each part. * Sort non worded problems based on whether the whole / a part is unknown or whether it is the whole, the number of parts or the size of each part. * Break two step non worded problems into the first and second calculation needed based on whether the whole / a part is unknown or whether it is the whole, the number of parts or the size of each part. * Sort worded problems based on whether the whole / a part is unknown or whether the whole, the number of parts or the size of each part is unknown. * Break two step problems into the first and second calculation needed based on whether the whole / a part is unknown or whether the whole, the number of parts or the size of each part is unknown. | | **Long multiplication**   * Multiply TO by TO using a grid method. * Multiply TO by TO using column multiplication. * Multiply HTO by TO using a grid method. * Multiply HTO by TO using column multiplication. * Multiply ThHTO by TO using column multiplication. * Solve target problems aiming for a given product, adjusting the factors through trial and error. | **Long division**   * Divide by 12 using long division with no remainders. * Divide by 12 using long division with remainders. * Divide by 12 using long division giving a decimal remainder. * Divide by 12 using long division with remainders. * Divide by 12 using long division giving a decimal remainder. * Divide by any TO using long division giving decimal remainders. | **Position and direction in all four quadrants**   * Read the coordinates of a point in all quadrants. * Plot a point in all quadrants. * Read the coordinates of corners of polygons in all quadrants. * Plot the points of corners of polygons in all quadrants. * Work out missing corners of polygons and write the coordinates. * Translate a shape vertically by moving each corner between quadrants. * Translate a shape vertically between quadrants by moving one corner and copying the shape’s dimensions. * Translate a shape vertically between quadrants and write its new coordinates. * Given the final position and the vertical translation between quadrants, draw the original position. * Given the final position and the vertical translation between quadrants, write the coordinates of the original position. * Translate a shape horizontally between quadrants by moving each corner. * Translate a shape horizontally between quadrants by moving one corner and copying the shape’s dimensions. * Translate a shape horizontally between quadrants and write its new coordinates. * Given the final position and the horizontal translation between quadrants, draw the original position. * Given the final position and the horizontal translation between quadrants, write the coordinates of the original position. * Translate a shape both vertically and horizontally between quadrants by moving each corner. * Translate a shape both vertically and horizontally between quadrants by moving one corner and copying the shape’s dimensions. * Translate a shape both vertically and horizontally between quadrants and write its new coordinates. * Given the final position and both the vertical and horizontal translation between quadrants, draw the original position. * Given the final position and both the vertical and horizontal translation, write the coordinates of the original position. | |

Autumn 2

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| **Week 1** | **Week 2** | **Week 3** | **Week 4** | **Week 5** | **Week 6** | **Week 7** |
| **Fractions**   * Simplify fractions by reading a fraction wall. * Simplify fractions by using common factors. * Know that there are an infinite number of equivalents for any fraction and find some using common multiples. * Show which fraction out of two is bigger by shading a picture or drawing own bar model. * Show which fraction out of two is bigger by finding a common denominator. * Order three or more fractions by shading pictures or drawing own bar model. * Order three or more fractions by finding a common denominator. | **Adding and subtracting fractions**   * Add and subtract proper and improper fractions. * Add and subtract proper fractions and mixed numbers. * Add and subtract improper fractions and mixed numbers. * Add and subtract combinations of proper fractions, improper fractions and mixed numbers. * Generate 4 addition and subtraction statements involving all 3 types of fraction using a bar model. * Generate 4 addition and subtraction statements involving all 3 types of fraction using a bar model where the whole or a part is unknown. * Sort missing number questions involving all 3 types of fraction based on whether the whole or a part is unknown, then solve. * Solve balancing equations involving all 3 types of fraction where both sides are whole unknown. * Solve balancing equations involving all 3 types of fraction where both sides are part unknown. * Solve balancing equations involving all 3 types of fraction where one side is part unknown and one side is whole unknown. | **Multiplying and dividing fractions**   * Multiply a unit fraction by a unit fraction using an area model. * Multiply a unit fraction by a unit fraction using a number line. * Multiply a unit fraction by a non unit fraction using an area model. * Multiply a unit fraction by a non unit fraction using a number line. * Multiply a non unit fraction by a non unit fraction using an area model. * Multiply a non unit fraction by a non unit fraction using a number line. * Divide a non unit fraction by a whole number where the numerator and the divisor are the same. * Divide a unit fraction by a whole number by drawing and splitting a bar model into further equal parts. | **Negative numbers**   * Count backwards in twos from an odd one digit number, crossing zero. * Count backwards in other multiples from any one digit number, crossing zero. * Order positive and negative numbers from smallest to biggest and biggest to smallest using the context of temperature. * Subtract a larger number (part) from a smaller number (whole) to find a negative part. * Add a positive to a negative to find a positive whole. * Find the difference between a positive and negative. * Solve problems involving temperature change. | **Parts of a circle**   * Identify and label the perimeter of a circle as the circumference. * Identify and label the radius of a circle. * Identify and label the diameter of a circle. * Work out the diameter of the radius is known. * Work out the radius if the diameter is known. | **Area**   * Find the area of rectangles by applying the w x h formula. * Find the area of compound rectilinear shapes by applying the w x h formula for each part of the shape and adding. * Find the area of a right angled triangle by visualising it as half a rectangle, multiplying w by h and then halving the result. * Find the area of any triangle by multiplying w by h and then halving the result. * Find the area of a parallelogram by cutting and rearranging into a rectangle. * Find the area of parallelograms by multiplying w by h. | **Imperial measurement**   * Know how long a foot is. * Know that a foot is 12 inches. * Know how long an inch is compared to a cm. * Convert between inches and cm using a line graph. * Know how far a mile is compared to a km. * Convert between miles and km using a line graph. * Know how heavy a pound is. * Convert between pounds and grams using a line graph. * Know how much a pint is compared to a litre. * Convert between pints and litres using a line graph. |

Spring 1

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| **Week 1** | **Week 2** | **Week 3** | **Week 4** | **Week 5** | **Week 6** |
| **Percentages**   * Represent multiples of 10% on a hundred square and relate to tenths. * Represent multiples of 1% on a hundred square and relate to hundredths. * Equivalences between fractions, decimals and percentages on hundred squares and number lines. * Calculate 10% of a number by dividing by 10. * Calculate the whole if 10% is known. * Calculate multiples of 10%. * Calculate the whole if multiples of 10% are known. * Calculate 5% of a number. * Calculate the whole if 5% is known. * Calculate multiples of 5%. * Calculate the whole if multiples of 5% are known. * Calculate 1% of a number. * Calculate the whole if 1% is known. * Calculate multiples of 1%. * Calculate the whole if multiples of 1% are known. * Look for efficient strategies (e.g., 69% = 70% - 1%). * Use percentage to make comparisons. | | **Statistics – Pie charts**   * Work out an unknown percentage where other proportions are known. * Label the value of proportions where the whole is known and the percentage of each section is known. * Work out the whole if the value of one proportion is known. * Work out the value of other proportions if one proportion is known. * Construct pie charts where the sections are multiples of 25% on a scaffolded circle. * Construct pie charts where the sections are multiples of 10% on a scaffolded circle. * Construct pie charts where the sections are multiples of 5% on a scaffolded circle. * Construct pie charts where the sections are multiples of 25% on using a protractor. * Construct pie charts where the sections are multiples of 10% using a protractor. * Construct pie charts where the sections are multiples of 5% using a protractor. | | **Converting measurements**   * Convert between cm and mm and vice versa by multiplying and dividing by 10. * Convert between m and cm and vice versa by multiplying and dividing by 100. * Convert between km and m and vice versa by multiplying and dividing by 1000. * Convert between L and ml and vice versa by multiplying and dividing by 1000. * Convert between kg and g and vice versa by multiplying and dividing by 1000. | **Reflection**   * Reflect a rectilinear shape in the x and y axis across quadrants one corner at a time. * Reflect a rectilinear shape in the x and y axis across quadrants by working out one corner and copying the dimensions of the original shape. * Reflect a shape with diagonal lines in the x and y axis across quadrants by working out one corner and copying the dimensions of the original shape. * Write the coordinates of reflected shapes in varied mirror lines. * Reflect a rectilinear shape in a diagonal mirror line across quadrants by working out one corner and copying the dimensions of the original shape. * Reflect a shape with diagonal lines in a diagonal mirror line across quadrants by working out one corner and copying the dimensions of the original shape. * Write the coordinates of reflected shapes in varied mirror lines. * Complete partial shapes both sides of a mirror line to find the original and its reflection |

Spring 2

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| **Week 1** | **Week 2** | **Week 3** | **Week 4** | **Week 5** | **Week 6** |
| **Ratio**   * Read bar models comparing part with part. * Draw bar models comparing part with part. * Find equivalent ratios by extending bar models and using knowledge of multiples. * Simplify ratios by looking for a common denominator. * Say what fraction of the whole each proportion is. * Split a whole into a unit ratio and a non unit ratio by dividing by the total number of parts. * Split a whole into non unit ratios by dividing by the total number of parts. * Given the value of a unit ratio, work out the value of other proportions and the whole. * Given the value of a non unit ratio, work out the value of other proportions and the whole. * Given the difference between two proportions (where the difference is one of the total equal parts), work out the value of the proportions and the whole. * Given the difference between two proportions (where the difference is more than one of the total equal parts), work out the value of the proportions and the whole. * Sort problems based on whether the whole or the parts are unknown, then solve. * Break two step problems into the first and second calculation needed based on whether the whole or a part is unknown. * Increase shapes by whole number scale factors. * Decrease shapes by whole number scale factors. * Increase shapes by mixed number scale factors. * Decrease shapes by mixed number scale factors. | | **Algebra**   * Generate sequences from a given one step linear rule. * Find a one step linear rule in a sequence of numbers. * Express the rule algebraically. * Use the rule to find given terms in the sequence. * Generate sequences from a given two step linear rule. * Find a two step linear rule in a sequence of numbers. * Express the rule algebraically. * Use the rule to find given terms in the sequence. * Generate 4 statements from an additive reasoning bar model, where the unknown is represented by a letter. * Rearrange the unknown to one side of the equals sign, then solve for the unknown. * Use Numicon to find pairs of numbers that satisfy an equation expressed as, for example, x + y = 12. * Work systematically to find pairs of numbers that satisfy an equation expressed as, for example, x + y = 12 using number facts. * Use Numicon to find pairs of numbers that satisfy an equation expressed as, for example, 2x + y = 12. * Work systematically to find pairs of numbers that satisfy an equation expressed as, for example, 2x + y = 12 using number facts. * Use Numicon to find pairs of numbers that satisfy an equation expressed as, for example, 2x + 3y = 12. * Work systematically to find pairs of numbers that satisfy an equation expressed as, for example, 2x + 3y = 12 using number facts. | | **Angles**   * In a right angle split into two parts and one of the parts is known, work out the unknown angle. * In a right angle split into three parts and two of the parts are known, work out the unknown angle. * In a straight line split into two parts and one of the parts is known, work out the unknown angle. * In a straight line split into three parts and two of the parts are known, work out the unknown angle. * In a full turn split into two parts and one of the parts is known, work out the unknown angle. * In a full turn split into three or more parts and all but one of the parts are known, work out the unknown angle. | **Statistics – line graphs**   * Use a plotted point on a line graph to read from the y to the x axis. * Use a plotted point on a line graph to read from the x to the y axis. * Plot points on a line graph. * Use a value on the y axis to read a value on the x axis. * Use a value on the x axis to read a value on the y axis. * Describe the story of a line graph. * Calculate lengths of time from points on a line graph. * Convert between units of measurement using line graphs. |

Summer 1

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| **Week 1** | **Week 2** | **Week 3** | **Week 4** | **Week 5** |
| **Decimals**   * Relate thousandths as fractions to thousandths as decimals and convert between them. * Count in thousandths between and across multiples of hundredth, tenth and whole numbers, forwards and backwards. * Read and mark multiples of thousandth on different number lines. * Show pictorially and on a number line that, for example, 0.4, 0.04 and 0.004 are not the same. * Say which is bigger or smaller out of two O.thth numbers. * Order three or more O.thth numbers from biggest to smallest and smallest to biggest. * Order three or more decimal numbers from biggest to smallest and smallest to biggest. * Round O.thth numbers to the nearest hundredth, tenth and whole number. * Add and subtract multiples of thousandth to any O.thth number using place value counters and number lines. * Add and subtract O.thth using expanded column methods. * Add and subtract O.thth using contracted column methods. * Multiply O.thth by whole numbers using the expanded column method. * Multiply O.thth by whole numbers using the contracted column method. | | **Review of various concepts decided by teacher through formative assessment.** | | |

Summer 2

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| **Week 1** | **Week 2** | **Week 3** | **Week 4** | **Week 5** | **Week 6** | **Week 7** |
| **Volume**   * Count the volume of shapes made from multi link cubes where each cube is 1cm3. * Calculate the volume of shapes made from multi link cubes by multiplying w by h by d. * Make all possible cuboids that satisfy a given volume. * Calculate the volume of cuboids in pictorial form by using the formula w x h x d. * Work out a missing dimension if two and the volume are given. * Calculate the volume of compound cuboids in pictorial form breaking them into cuboids, using the formula w x h x d and adding the volumes. | **Mean average**   * Calculate the mean average of 3 numbers where the mean is a whole number. * Calculate the mean average of 5, 7 etc numbers where the mean is a whole number. * Calculate the mean average of 2, 4, 6 etc numbers where the mean is a whole number. * Calculate the mean average of 3 numbers where the mean is not a whole number. * Calculate the mean average of 5, 7 etc numbers where the mean is a not whole number. * Calculate the mean average of 2, 4, 6 etc numbers where the mean is not a whole number. * Given the mean and how many numbers in the data set, work out what the numbers must add up to. * Given the mean and all but one of the numbers in the data set, work out the missing number. * Given the mean and all but two of the numbers in the data set, work out what the missing numbers could be. * Given the mean and how many numbers in the data set, work out what the numbers could be. | **Order of operations**   * Solve multiple operation problems involving only addition and subtraction, moving left to right. * Solve multiple operation problems involving addition and subtraction and multiplication and division, carrying out multiplication and division first. * Solve multiple operation problems involving addition and subtraction and multiplication and division where some addition or subtraction is in brackets, carrying out those first. * Insert brackets into calculations to make them correct. * Solve multiple operation problems involving addition and subtraction and multiplication and division where there are also numbers to be squared or cubed, doing those first. * Solve multiple operation problems involving addition and subtraction and multiplication and division, involving brackets and numbers to be squared or cubed. | |  |  |  |