**Newington Green and Rotherfield Maths MTP – Year 6**

Blue font in Spring/Summer indicates previously untaught objective

Green font indicates cross-curricular links

| | **Autumn**<br>**World War 2**<br>**Migration** | **Spring**<br>**Tudors**<br>**Spain** | **Summer**<br>**Women's Equality**<br>**Climate Change** |
|---|---|---|---|
| **Number and Place Value** | **Week 1** | | **Weeks 1–2 (according to need)** |
| | • read, write, order and compare numbers up to 10 000 000 and determine the value of each digit *e.g. What must be added to 26 523 to change it to 54 525?*<br>• round any whole number to a required degree of accuracy *e.g. round 265 496 to the nearest 10 000 (270 000)*<br>• use negative numbers in context, and calculate intervals across zero *e.g. how much warmer is 5°C than -4°C? (9°C)*<br>• solve number and practical problems that involve all of the above *e.g. What is the largest 5-digit number whose digits sum to 20? (99200)* | | • read, write, order and compare numbers up to 10 000 000 and determine the value of each digit<br>• round any whole number to a required degree of accuracy *e.g. What is the smallest number which rounds to 500 000, to the nearest 1000? (499 500).*<br>• use negative numbers in context, and calculate intervals across zero |
| | **Weeks 2–4** | **Weeks 7–8** | **Weeks 1–2 (according to need)** |

| | | | |
|---|---|---|---|
| **Addition, Subtraction, Multiplication and Division** | HISTORY LINK: To be able to understand how rationing in Britain was used during WW2.<br>• solve problems involving addition, subtraction, multiplication and division *e.g. 396 children and 37 adults went on a school trip. Buses seat 57 people. How many buses were needed?*<br>• multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication<br>• divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context<br>• perform mental calculations, including with mixed operations and large numbers *e.g. (13 500 × 2) ÷ 9 = 3000*<br>• identify common factors, common multiples and prime numbers *e.g. common factors of 12 and 15 are 1 and 3; common multiples of 4 and 6* | GEOGRAPHY LINK: To understand the key aspects of Spain's economy and be able to reflect on the importance and value of tourism.<br>PSHE LINK: **Social skills:** To know how to plan a household budget.<br>• multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication *e.g. 230.6 x 27*<br>• divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context<br>• perform mental calculations, including with mixed operations and large numbers *e.g. (13 400 + 10 600) × 4 ÷ 12 = 8000*<br>• identify common factors, common multiples and prime numbers *e.g. find the smallest common multiple of 5, 6 and 8*<br>• use their knowledge of the order of operations to carry out calculations involving the four operations and using | • multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication<br>• divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders as whole number remainders, fractions, or by rounding, as appropriate for the context<br>• divide numbers up to 4 digits by a two-digit number using the formal written method of short division where appropriate, interpreting remainders according to the context |

| | | | |
|---|---|---|---|
| | *are 12, 24, 36…; prime numbers are numbers with exactly 2 factors e.g. 2, 3, 5, 7, 11, 13…*<br>• use their knowledge of the order of operations to carry out calculations involving the four operations *e.g. 2 + 1 x 3 = 5 and (2 + 1) x 3 = 9*<br>• solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why *e.g. There are 6534 cars parked in a 3-storey car park; 1398 are on the first floor and 3765 are on the second floor; how many cars are parked on the third floor?*<br>• use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy *e.g. find the perimeter of a football pitch with side lengths 105.3m and 46.8m (estimate: (105+45)×2=300m; actual: (105.3+46.8)×2=304.2m (same number of decimal places as numbers in the question)* | brackets *e.g. 2 + 1 x 3 = 5 and (2 + 1) x 3 = 9*<br>• solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why e.g. Three people won £365 496 on the lottery; one received £197 540, another received £40 010; how much did the third person receive?<br>• solve problems involving addition, subtraction, multiplication and division *e.g. I think of a number and subtract 5.6 from it then multiply the result by 6; the answer is 7.2; what was my number?*<br>• use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy *e.g. A box contains approximately 52 matches; how many boxes can be filled with 10 000 matches?* | |
| **Measurement** | **Weeks 5–6** | **Weeks 3–4** | **Weeks 3–4 (according to need)** |

| | | | |
|---|---|---|---|
| | HISTORY LINK: To be able to understand how rationing in Britain was used during WW2.<br>• (solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate *e.g. Ben walked 850m to the bus stop, travelled on a bus for 8.67km and then a train for 120.9km; how far did he travel altogether?*<br>• use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places<br>• convert between miles and kilometres e.g. know that a mile is approximately 1.6km (and 1km is approximately 0.6miles) and use this to make rough calculations<br>• recognise that shapes with the same areas can have different perimeters and vice versa *e.g. investigate triangles with areas of 12cm$^2$ to find which has the smallest perimeter* | • recognise that shapes with the same areas can have different perimeters and vice versa *e.g. investigate triangles with areas of 12cm2 to find which has the smallest perimeter recognise when it is possible to use formulae for area and volume of shapes*<br>• calculate the area of parallelograms and *triangles e.g. compare the 'counting squares' method to using the formula for the area of a parallelogram*<br>• calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm$^3$) and cubic metres (m$^3$), and extending to other units such as mm$^3$ and km$^3$<br>**Week 11**<br>• solve problems involving the calculation and conversion of units of measure, using decimal notation up to three decimal places where appropriate *e.g. Ben walked 850m to the bus stop, travelled on a bus for 8.67km and then a train for* | • recognise that shapes with the same areas can have different perimeters and vice versa *e.g. investigate parallelograms with areas of 24cm$^2$ to find which has the smallest perimeter*<br>• recognise when it is possible to use formulae for area and volume of shapes *e.g. find the height of cuboid which is 12cm long, 2cm high and has the same volume as a cube with sides of 6cm*<br>• calculate the area of parallelograms and triangles<br>• calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre cubed (cm$^3$) and cubic metres (m$^3$), and extending to other units |

| | | | |
|---|---|---|---|
| | • recognise when it is possible to use formulae for area and volume of shapes *e.g. find the length of the side of a cube with a volume of 27cm$^3$*<br>• calculate the area of parallelograms and triangles, relating it to the area of rectangles *e.g. compare the 'counting squares' method to using the formula for the area of a parallelogram*<br>• calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic centimetres (cm$^3$) and cubic metres (m$^3$), and extending to other units such as mm$^3$ and km$^3$ | *120.9km; how far did he travel altogether?*<br>• use, read, write and convert between standard units, converting measurements of length, mass, volume and time from a smaller unit of measure to a larger unit, and vice versa, using decimal notation to up to three decimal places<br>• convert between miles and kilometres *e.g. know that a mile is approximately 1.6km (and 1km is approximately 0.6miles) and use this to make rough calculations.* | |
| **Geometry** | | **Weeks 5–6** | **Weeks 3-4 (according to need)** |
| | | • draw 2-D shapes using given dimensions and angles using measuring tools and conventional markings and labels for lines and angles *e.g. complete a triangle with given lengths and angles*<br>• recognise, describe and build simple 3-D shapes, including making nets *e.g. visualise 3-D shapes drawn on isometric* | • draw 2-D shapes using given dimensions and angles *e.g. construct a triangle or complete a parallelogram with given lengths and angles*<br>• recognise, describe and build simple 3-D shapes, including making nets<br>• compare and classify geometric shapes based on their properties and sizes and |

| | | | |
|---|---|---|---|
| | | *paper and begin to draw 2-D representations of 3-D shapes*<br>• compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygon<br>• illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius, describing it algebraically as d=2×r<br>• recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles describing them algebraically *e.g. a=180-(b+c)*<br>• predict missing coordinates of quadrilaterals by using the properties of shapes, which may be expressed algebraically *e.g. translating vertex (a, b) to (a-2, b+3), or find the other vertices of a square, given two of them are (a, b) and (a+d, b+d)* | find unknown angles in any triangles, quadrilaterals, and regular polygons<br>• illustrate and name parts of circles, including radius, diameter and circumference and know that the diameter is twice the radius<br>• recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles, and find missing angles describing them algebraically *e.g. a=180-(b+c)* |
| **Fractions, Decimals and Percentages** | **Weeks 7–8**<br>• use common factors to simplify fractions *e.g. as the numerator and denominator have a* | **Weeks 1–2**<br>• use common factors to simplify fractions | **Weeks 9–10 (according to need)**<br>• use common factors to simplify fractions |

| | | | |
|---|---|---|---|
| | *common factor of 4, 12/16 can be simplified to 3/4*<br>• use common multiples to express fractions in the same denomination *e.g. as the denominators have a common multiple of 12, 3/4 and 5/6 can both be expressed in twelfths i.e. 9/12 and 10/12 respectively*<br>• compare and order fractions, including fractions >1 *e.g. put these fractions in order from the smallest: 5/4, 5/8, 3/2, 14/8*<br>• add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions *e.g. 1/2 + 1/8 = 5/8*<br>• multiply simple pairs of proper fractions, writing the answer in its simplest form *e.g. 1/4 × 1/2 = 1/8*<br>• divide proper fractions by whole numbers *e.g. 1/3 ÷ 2 = 1/6*<br>• associate a fraction with division and calculate decimal fraction equivalents *e.g. 0.375 for a simple fraction e.g. 3/8*<br>• identify the value of each digit to three decimal places and | • use common multiples to express fractions in the same denomination<br>• compare and order fractions, including fractions >1 *e.g. put these fractions in order from the smallest: $^{5}/_{4}$, $^{5}/_{6}$, $^{3}/_{2}$, $^{4}/_{3}$*<br>• add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions *e.g. 1/2 + 1/8 = 5/8*<br>• multiply simple pairs of proper fractions, writing the answer in its simplest form *e.g. 1/4 × 1/2 = 1/8*<br>• divide proper fractions by whole numbers *e.g. 1/3 ÷ 2 = 1/6*<br>• associate a fraction with division and calculate decimal fraction equivalents *e.g. 0.375 for a simple fraction e.g. 3/8*<br>• identify the value of each digit to three decimal places and multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places e.g. ___ × 100 = 140.8<br>• multiply one-digit numbers with up to two decimal places by whole numbers *e.g. 0.06 x 8*<br>• use written division methods in cases where the answer has up | • use common multiples to express fractions in the same denomination<br>• compare and order fractions, including fractions > 1 *e.g. put these fractions in order from the smallest: 5/4, 5/6, 3/5, 4/3*<br>• add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions *e.g. $1^{3}/_{4} - {}^{5}/_{6} = {}^{11}/_{12}$*<br>• multiply simple pairs of proper fractions, writing the answer in its simplest form *e.g. 1/4 × 1/2 = 1/8*<br>• divide proper fractions by whole numbers *e.g. 1/3 ÷ 2 = 1/6*<br>• associate a fraction with division and calculate decimal fraction equivalents *e.g. 0.375 for a simple fraction e.g. 5/8*<br>• identify the value of each digit in numbers given to three decimal places and multiply and divide numbers by 10, 100 and 1000 giving answers up to three decimal places *e.g. ____ ÷ 1000 = 0.45* |

| | | | |
|---|---|---|---|
| | multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places *e.g. 205.6 ÷ 100 =2.056*<br>• multiply one-digit numbers with up to two decimal places by whole numbers *e.g. 0.6 x 7*<br>• use written division methods in cases where the answer has up to two decimal places *e.g. 458 ÷ 8 = 57.25*<br>• solve problems which require answers to be rounded to specified degrees of accuracy<br>• recall and use equivalences between simple fractions, decimals and percentages, including in different contexts *e.g. order $^{4}/_{5}$ , 75%, 0.9, $^{19}/_{20}$* | to two decimal places *e.g. 458 ÷ 8 = 57.25*<br>• solve problems which require answers to be rounded to specified degrees of accuracy<br>• recall and use equivalences between simple fractions, decimals and percentages, including in different contexts *e.g. find a fraction which lies between 0.4 and 0.5* | |
| **Statistics** | **Week 9**<br>SCIENCE LINK: To be able to recognise the impact of diet, exercise, drugs and lifestyle on the way our bodies function.<br>• interpret and construct pie charts and line graphs and use these to solve problems *e.g. draw a pie chart to show how Jack spends his £36 birthday money:* | SCIENCE LINK: To be able to plan my own scientific enquiry to answer a question I have posed, recognising and controlling variables where necessary. | **Weeks 5-6 (according to need)**<br>HISTORY LINK: To be able to appreciate that men and women have not been treated equally in the past.<br>• interpret and construct pie charts and line graphs and use these to solve problems *e.g. connect conversion from kilometres to miles in* |

| | | | |
|---|---|---|---|
| | *£9 snacks*<br>*£15 toys*<br>*£12 books*<br>• calculate and interpret the mean as an average *e.g. find the mean height of these children: 1.2m, 1.07m and 1.12m* | | *measure to its graphical representation*<br>• calculate and interpret the mean as an average |
| **Position and Direction** | **Week 10**<br>• describe positions on the full coordinate grid (all four quadrants) *e.g. (-3, 7)*<br>• draw and translate simple shapes on the coordinate plane, and reflect them in the axes | | **Weeks 5-6 (according to need)**<br>• describe positions on the full coordinate grid (all four quadrants)<br>• draw and translate simple shapes on the coordinate plane, and reflect them in the axes |
| **Algebra** | **Weeks 11–12**<br>• use simple formulae expressed in words *e.g. write a formula for the number of months, m, in y years. (y=12m)*<br>• generate and describe linear number sequences e.g. write the first 5 terms in a 'decrease | **Weeks 9–10**<br>• express missing number problems algebraically *e.g. the perimeter of a triangle is 20cm; it has two sides of length 8cm; what is the length of the other side? (20=2×8+x so x=4cm)* | |

| | | | |
|---|---|---|---|
| | by 9' sequence starting from 20, or find the nth term of a simple sequence *e.g. 4, 8, 12, 16, … 4n*<br>• express missing number problems algebraically *e.g. 17 = x + 4.5*<br>• find pairs of numbers that satisfy an equation with two unknowns *e.g. a – b = 5, give pairs of values that a and b could have (e.g. 8, 3 or 6.5, 1.5 or …) or. p×q=24; if p and q are both positive, even numbers, list all the possible combinations (e.g. 2×12, 4×6, …)*<br>• enumerate possibilities of combinations of two variables *e.g. investigate how many different ways 2 red eggs can be placed in a 6-space egg carton, by starting with a 3-space carton, 4-space carton etc?* | • use simple formulae expressed in words *e.g. write a formula for the cost of a party, C, which costs £100 plus £2 per person, n. (C=100+2n)*<br>• generate and describe linear number sequences *e.g. write the first 5 terms in a 'decrease by 9' sequence starting from 20, or find the nth term of a simple sequence e.g. 4, 8, 12, 16, … 4n*<br>• find pairs of numbers that satisfy number sentences involving two unknowns *e.g. a – b = 5, give pairs of values that a and b could have e.g. 8, 3 or 6.5, 1.5 or … or. p×q=24; if p and q are both positive, even numbers, list all the possible combinations (e.g. 2×12, 4×6, …)*<br>• enumerate all possibilities of combinations of two variables *e.g. investigate all possible half-time scores when the full time score of a football match is 4:2* | |
| **Ratio and Proportion** | **Weeks 13–14** | **Week 12** | **Week 7-8 (according to need)** |
| | GEOGRAPHY LINK: To understand what migration is, why people might migrate from one region to another and the effect migration has on | GEOGRAPHY LINK: To compare and contrast a region of Spain with the local environment (e.g. population data). | • solve problems involving similar shapes where the scale factor is known or can be found *e.g. adjust a recipe for 6 people, to serve 15 people* |

| | | | |
|---|---|---|---|
| | populations. (e.g. study population numbers throughout WW2).<br><br>PSHE LINK: To know about people who have moved to Islington from other places (inc refugees).<br><br>• solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts e.g. adjust a recipe for 4 people, to serve 20 people<br>• solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison<br>• solve problems involving similar shapes where the scale factor is known or can be found *e.g. two rectangular picture frames are the same shape, but one is bigger than the other; the smaller one measures 10cm by 15cm; the larger frame has a width of 30cm, what is its length?*<br>• solve problems involving unequal sharing and grouping using knowledge of fractions | To be able to relate human geography to locality (e.g. population data).<br><br>• solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division facts *e.g. adjust a recipe for 4 people, to serve 6 people*<br>• solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for comparison<br>• solve problems involving similar shapes where the scale factor is known or can be found *e.g. two rectangular picture frames are the same shape, but one is bigger than the other; the smaller one measures 10cm by 15cm; the larger frame has a width of 30cm, what is its length?*<br>• solve problems involving unequal sharing and grouping using knowledge of fractions and multiples *e.g. for every egg you need three spoons of flour; how many eggs are needed for 12 spoons of flour?* | |

| | | | |
|---|---|---|---|
| | and multiples *e.g. for every egg you need three spoons of flour; how many eggs are needed for 12 spoons of flour?* | | |