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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Term** | **Week 1** | **Week 2** | **Week 3** | | | **Week 4** | **Week 5** | **Week 6** | | **Week 7** | **Week 8** |  | **Week 1** | **Week 2** | | | | **Week 3** | **Week 4** | | | **Week 5** | **Week 6** | | **Week 7** | | **Week 8** | **Week 9** |
| **Autumn 1 – 8 Weeks** | | | | | | | | | | | | **Autumn 2 – 9 Weeks** | | | | | | | | | | | | | | | |
|  | | | **Pixl Paper Testing Window (Paper 1)** | | | | |  | | | **Start of** | **Pixl Y2 Testing Window (2018 Paper)** | | | | | | | | | **Y2 QLA Deadline** | **Y2 IFT Reports** | |  | | | |
|  | | |  | | | | | **Pixl Y3-5 Testing Window** | | | |  | | | | | | | | |  | | | | | | |
|  | | | | | | | | **Y6 QLA Deadline** | | **Y6 IFT Reports** |  | **Y3-5 QLA Deadline** | **Y3-5 IFT Reports** | | | | **Pixl Y6 Testing Window (2017 Paper)** | | | | | **Y6 QLA Deadline** | | | **Y6 IFT Reports** |  | |
| **Autumn** | **Number: Place Value**  **3 Weeks**  **Small Steps: 11**  **NCETM Spine:** [**1.26**](https://www.ncetm.org.uk/resources/52480)  [**1.27**](https://www.ncetm.org.uk/resources/52609) **(negative numbers)** | | | | **Number: Addition & Subtraction**  **2 Weeks**  **Small Steps: 9**  **NCETM Spine:revisit** [**1.22**](https://www.ncetm.org.uk/resources/52479) **(TP 3 and TP5) and** [**1.20**](https://www.ncetm.org.uk/resources/52401)**,** [**1.21**](https://www.ncetm.org.uk/resources/52402) **for written methods.**  [**1.29**](https://www.ncetm.org.uk/resources/52611) **(strategies and mental methods as opposed to written. Includes decimals)**  [**1.29**](https://www.ncetm.org.uk/resources/52611) **(TP 3 difference)**  [**1.29**](https://www.ncetm.org.uk/resources/52611) **(TP 6 estimate, approximate, inverse)**  [**1.28**](https://www.ncetm.org.uk/resources/52610) **(multi-step problems)** | | | | **Statistics**  **2 Weeks**  **Small Steps: 9**  **NCETM Spine: some examples in** [**1.28**](https://www.ncetm.org.uk/resources/52610) **and** [**1.29**](https://www.ncetm.org.uk/resources/52611) | | **Consolidation/**  **Assessment** | **Number: Multiplication & Division**  **3 Weeks**  **Small Steps: 13**  **NCETM Spine:**  [**2.21**](https://www.ncetm.org.uk/resources/53659) **(factors multiples prime)**  [**2.9**](https://www.ncetm.org.uk/resources/53132) **(square numbers)**  [**2.13**](https://www.ncetm.org.uk/resources/53537) **(mult divide 10,100,100)**  [**2.19**](https://www.ncetm.org.uk/resources/53657) **(10,100,1000)**  [**2.20**](https://www.ncetm.org.uk/resources/53658) **(cube numbers)**  [**2.18**](https://www.ncetm.org.uk/resources/53571) **(maybe stand alone as equivalence)** | | | | | | | **Measurement: Length & Perimeter**  **2 Weeks**  **Small Steps: 9**  **NCETM Spine: revisit** [**2.16**](https://www.ncetm.org.uk/resources/53569) | | | **Number: Multiplication & Division**  **3 Weeks**  **Small Steps: 12**  **NCETM Spine:** [**2.23**](https://www.ncetm.org.uk/resources/53671) **(area model)**  [**2.15**](https://www.ncetm.org.uk/resources/53539) **(division)**  [**2.14**](https://www.ncetm.org.uk/resources/53538) **(written multiplication)** | | | | | **Consolidation/**  **Assessment** |
| **Spring 1 – 6 Weeks** | | | | | | | | | |  |  | **Spring 2 – 7 Weeks** | | | | | | | | | | | | | |
|  | | | **Pixl Y1 Testing Window** | | | | | | | **Y1 QLA Deadline** | **Y1 IFT Reports** | | | |  | | | | | | | | |
|  | | | | **Pixl Y3-5 Testing Window** | | | | | |  | **Pixl Y2 Testing Window (2019 Paper)**  **Pixl Y6 Testing Window (2019 Paper)** | | | | | | | | **Y2 & Y6 QLA Deadline** | **Y2 & Y6 IFT Reports** | |  | |
|  | | | **Pixl Y6 Testing Window (2018 Paper)** | | | | **Y6 QLA Deadline** | **Y6 IFT Reports** | | **Pixl Y3-5 Testing Window** | **Y3-5 QLA Deadline** | | | | **Y3-5 IFT Reports** |  | | | | | | | |
| **Spring** | **Number: Fractions**  **6 weeks**  **Small Steps: 24**  **NCETM Spine: revisit parts of earlier fractions to prepare for topic (**[**3.1**](https://www.ncetm.org.uk/resources/53333)**,** [**3.2**](https://www.ncetm.org.uk/resources/53334)**,** [**3.3**](https://www.ncetm.org.uk/resources/53429)**,** [**3.4**](https://www.ncetm.org.uk/resources/53430)**)**  [**3.7**](https://www.ncetm.org.uk/resources/53651) **(equivalents and simplifying, compare order),** [**3.8**](https://www.ncetm.org.uk/resources/53652) **(add and subtract),** [**3.5**](https://www.ncetm.org.uk/resources/53649) **improper and mixed,** [**3.6**](https://www.ncetm.org.uk/resources/53650) **multiplying** | | | | | | | **Consolidation/**  **Assessment** | |  | **Number: Fractions**  **6 weeks**  **Small Steps: 24** | | **Number: Decimals and Percentages**  **2 Weeks**  **Small Steps: 10**  **NCETM Spine: continue from y4** [**1.23**](https://www.ncetm.org.uk/resources/52566) **and** [**1.24**](https://www.ncetm.org.uk/resources/52567) **(1/10, 1/100, 1/000ths)**  [**1.24**](https://www.ncetm.org.uk/resources/52567) **(TP 3 compare and order)**  [**3.10**](https://www.ncetm.org.uk/resources/53654) **FDP (TP1,TP2,TP4, TP5)** | | | | | **Number: Decimals**  **3 Weeks**  **Small Steps: 12**  **NCETM Spine: ref back to** [**1.23**](https://www.ncetm.org.uk/resources/52566) **TP 4 -6**  [**1.24**](https://www.ncetm.org.uk/resources/52567) **(TP 4 & 6)**  [**2.19**](https://www.ncetm.org.uk/resources/53657)**TP 2 and** [**2.29**](https://www.ncetm.org.uk/resources/53677) **(decimals by 10,100,1000)** | | | | **Consolidation/**  **Assessment** | |  |
| **Summer 1 – 5 Weeks** | | | | | | | |  | |  | **Summer 2 – 5 Weeks** | | | | | | | | | |
|  | | | | | | **Pixl Y1 Testing Window** | |  | **Pixl Y1 Testing Window** | | | | **Y1 QLA Deadline** | | **Y1 IFT Reports** | | |  |
|  | | | | | | **Pixl Y3-5 Testing Window** | |  | **Pixl Y3-5 Testing Window** | | | | | | **Y3-5 QLA Deadline** | | | **Y3-5 IFT Reports** |
| **Summer** | **Number: Decimals**  **3 Weeks**  **Small Steps: 12**  **NCETM Spine: ref back to** [**1.23**](https://www.ncetm.org.uk/resources/52566) **TP 4 -6**  [**1.24**](https://www.ncetm.org.uk/resources/52567) **(TP 4 & 6)**  [**2.19**](https://www.ncetm.org.uk/resources/53657)**TP 2 and** [**2.29**](https://www.ncetm.org.uk/resources/53677) **(decimals by 10,100,1000)** | **Geometry: Properties of Shape**  **3 Weeks**  **Small Steps: 13**  **NCETM Spine: N/A** | | | | | **Consolidation & Problem Solving** |  | | | | **Geometry: Position & Direction**  **2 Weeks**  **Small Steps: 9**  **NCETM Spine: N/A** | | | **Measurement: Covering Units**  **2 Weeks**  **Small Steps: 7**  **NCETM Spine: (**[**1.24**](https://www.ncetm.org.uk/resources/52567) **TP5)** | | | | | **Measurement: Volume**  **1 Week**  **Small Steps: 4**  **NCETM Spine:** [**2.20**](https://www.ncetm.org.uk/resources/53658) | **Consolidation/**  **Assessment** |

YEAR 5 – KS2 Mathematics Curriculum Map 2021-22

**Year 5 National Curriculum Objectives, White Rose Small Steps & NCTEM Spine Teaching Points**

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Autumn** | **Number: Place Value – 3 Weeks** | **Number: Addition & Subtraction – 2 Weeks** | | **Statistics – 2 Weeks** | | **Number: Multiplication & Division –**  **3 Weeks** | | | **Measurement: Length & Perimeter – 2 Weeks** | | | **Number: Multiplication & Division –**  **3 Weeks** |
| **National Curriculum Objectives** | * + - * read, write, order and compare numbers to at least 1,000,000 and determine the value of each digit       * count forwards or backwards in steps of powers of 10 for any given number up to 1,000,000       * interpret negative numbers in context, count forwards and backwards with positive and negative whole numbers, including through 0       * round any number up to 1,000,000 to the nearest 10, 100, 1,000, 10,000 and 100,000       * solve number problems and practical problems that involve all of the above       * read Roman numerals to 1,000 (M) and recognise years written in Roman numerals | * add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) * add and subtract numbers mentally with increasingly large numbers * use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy * solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why | | * solve comparison, sum and difference problems using information presented in a line graph * complete, read and interpret information in tables, including timetables | | * identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers * know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers * establish whether a number up to 100 is prime and recall prime numbers up to 19 * multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers * multiply and divide numbers mentally, drawing upon known facts * divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context * multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000 * recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³) * solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes * solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign * solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates | | | * convert between different units of metric measure [for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre] * understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints * measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres * calculate and compare the area of rectangles (including squares), including using standard units, square centimetres (cm²) and square metres (m²), and estimate the area of irregular shapes * estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water] * solve problems involving converting between units of time * use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling | | | * identify multiples and factors, including finding all factor pairs of a number, and common factors of 2 numbers * know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers * establish whether a number up to 100 is prime and recall prime numbers up to 19 * multiply numbers up to 4 digits by a one- or two-digit number using a formal written method, including long multiplication for two-digit numbers * multiply and divide numbers mentally, drawing upon known facts * divide numbers up to 4 digits by a one-digit number using the formal written method of short division and interpret remainders appropriately for the context * multiply and divide whole numbers and those involving decimals by 10, 100 and 1,000 * recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³) * solve problems involving multiplication and division, including using their knowledge of factors and multiples, squares and cubes * solve problems involving addition, subtraction, multiplication and division and a combination of these, including understanding the meaning of the equals sign * solve problems involving multiplication and division, including scaling by simple fractions and problems involving simple rates |
| **White Rose Small steps** | * 1000s, 100s, 10s and 1s * Numbers to 10,000 * Rounding to the nearest 10 * Rounding to the nearest 100 * Round to the nearest 10, 100 and 1,000 * Numbers to 100.000 * Numbers to a million * Counting in 10s, 100s, 1,000s, 10,000s and 100,000s * Compare and order numbers to one million * Negative numbers * Roman Numerals to 1,000 | * Add two 4-digit numbers – one exchange * Add two 4-digit numbers – one exchange * Add whole numbers with more than 4 digits (column method) * Subtract two 4-digit numbers – one exchange * Subtract two 4-digit numbers – more than one exchange * Subtract whole numbers with more than 4-digits (column method) * Round to estimate and approximate * Inverse operations (addition and subtraction) * Multi-step addition and subtraction problems | | * Interpret charts * Comparison, sum and difference * Introduce line graphs * Read and interpret line graphs * Draw line graphs * Use line graphs to solve problems * Read and interpret tables * Two-way tables * Times-tables | | * Multiples * Factors * Common factors * Prime numbers * Square numbers * Cube numbers * Multiply by 10 * Multiply by 100 * Multiply by 10, 100 and 1,000 * Divide by 10 * Divide by 100 * Divide by 10, 100 and 1,000 * Multiples of 10, 100 and 1,000 | | | * Measure perimeter * Perimeter on a grid * Perimeter of rectangles * Perimeter of rectilinear shapes * Calculate perimeter * Counting squares * Area of rectangles * Area of compound shapes * Area of irregular shapes | | | * Multiply 2-digits by 1-digit * Multiply3-digits by 1-digit * Multiply4-digits by 1-digit * Multiply2-digits (area model) * Multiply2-digits by 2-digits * Multiply3-digits by 2-digits * Multiply4-digits by 2-digits * Divide 2-digits by 1-digit (1) * Divide 2-digits by 1-digit (2) * Divide 3-digits by 1-digit (1) * Divide 4-digits by 1-digit (1) * Divide with remainders |
| **NCTEM Spine Teaching Points** | **1.26 – Composition and Calculation: Multiples of 1,000 up to 1,000,000**  Explore the composition of six-digit, whole-thousand numbers, using the partitioning structure; apply knowledge and strategies from segments 1.17 and 1.18 combined with unitising in 1,000s, as well as column methods and rounding.  **1.27- Negative numbers: Counting, comparing and calculating**  Introduce children to negative numbers, making links to everyday contexts; explore addition and subtraction below zero and across zero. | **1.22 – Composition and Calculation: 1,000 and 4-digit numbers**  Explore the composition of 1,000 and four-digit numbers, using the partitioning structure, and make links to measures; introduce children to calculation across thousands boundaries, and extend column algorithms and rounding to four-digit numbers.  **1.20 – Algorithms: Column addition**  Introduce children to the column algorithm for addition calculations, applying the algorithm to a variety of aggregation and augmentation contexts for two-digit and three-digit numbers; explore regrouping (column total is ten or greater) in detail.  **1.21- Algorithms: Column subtraction**  Introduce children to the column algorithm for subtraction calculations, applying the algorithm to a variety of partitioning, reduction and difference contexts for two-digit and three-digit numbers; explore exchange (insufficient quantity to subtract from in a column) in detail.  **1.29 – Using Equivalence and the Compensation Property to Calculate**  Explore the effect on the sum of changing the value of one or both addends; explore the effect on the difference of changing the value of the minuend, the subtrahend or both. Apply knowledge of compensation properties and inverse operations to calculate and balance equations.  **1.28 – Composition and Calculation: Numbers up to 10,000,000**  Building on segment 1.26, explore six-digit numbers that are not whole thousands, and then extend to seven-digit numbers; apply additive facts and strategies, including column algorithms, and rounding to these numbers. | | **1.28 – Composition and calculation: Numbers up to 10,000,000**  Building on segment 1.26, explore six-digit numbers that are not whole thousands, and then extend to seven-digit numbers; apply additive facts and strategies, including column algorithms, and rounding to these numbers.  **1.29 – Using equivalence and the compensation property to calculate**  Explore the effect on the sum of changing the value of one or both addends; explore the effect on the difference of changing the value of the minuend, the subtrahend or both. Apply knowledge of compensation properties and inverse operations to calculate and balance equations. | | **2.21 – Factors, multiples, prime numbers and composite numbers**  Identify properties of factors and multiples including square and prime numbers, composite numbers, common and prime factors, and common multiples. Use factor pairs to solve problems efficiently.  **2.9 – Times-tables: 7 and patterns within/across times-tables**  Build up the seven times table and solve associated multiplication and division problems; explore times table patterns including generalising about the product in terms of odd/even factors, reviewing divisibility rules, and exploring square numbers.  **2.12- Division with remainders**  Explore how some quantities can be split into equal groups with a remainder, and express this using mathematical notation; practise interpreting the meaning of the remainder in different contexts.  **2.19 – Calculation: x/÷ decimal factions by whole numbers**  Develop strategies for multiplying and dividing decimal fractions by whole numbers, including combining known facts with unitising, multiplying and dividing by 10 and 100, and using adjusting strategies.  **2.20 – Multiplication with three factors and volume**  Use multiplication to calculate the volume of cuboids and shapes comprised of several cuboids; use division to solve associated inverse problems. Use associativity and commutativity to solve abstract multiplication problems with three factors.  **2.18 – Using equivalence to calculate**  Develop efficiency in calculation by using equivalence, through adjusting the factors (in multiplication) and the dividend and divisor (in division). | | | **2.16 – Multiplicative contexts: Area and perimeter**  Use addition and multiplication to solve problems about the perimeter of irregular and regular 2D shapes, and to find the area of rectilinear and composite rectilinear shapes; use division to solve associated inverse problems. | | | **2.23 – Multiplication strategies for larger numbers and long multiplication**  Develop strategies for multiplying two numbers with two or more digits, including adjusting strategies when multiplying by a power of ten, partitioning followed by multiplication and addition of partial products, and long multiplication.  **2.15 – Division: Partitioning leading to short division**  Introduce the short division algorithm, using it to divide two-/three-digit numbers by single-digit numbers; explore exchange where necessary.  **2.14 – Multiplication: Partitioning leading to short multiplication**  Introduce the short multiplication algorithm, using it to multiply two-/three-digit numbers by single-digit numbers; explore regrouping where necessary. |
| **Spring** | **Number: Fractions – 6 Weeks** | | | | | | **Number: Decimals & Percentages – 2 Weeks** | | | **Number: Decimals – 3 Weeks** | | |
| **National Curriculum Objectives** | * compare and order fractions whose denominators are all multiples of the same number * identify, name and write equivalent fractions of a given fraction, represented visually, including tenths and hundredths * recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed number [for example, 2/5 + 4/5 = 6/5 = 1 1/5] * add and subtract fractions with the same denominator, and denominators that are multiples of the same number * multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams * read and write decimal numbers as fractions [for example, 0.71 = 71/100] * recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents * round decimals with 2 decimal places to the nearest whole number and to 1 decimal place * read, write, order and compare numbers with up to 3 decimal places * solve problems involving number up to 3 decimal places * recognise the per cent symbol (%) and understand that per cent relates to ‘number of parts per 100’, and write percentages as a fraction with denominator 100, and as a decimal fraction * solve problems which require knowing percentage and decimal equivalents of 1/2 , 1/4 , 1/5 , 2/5 , 4/5 and those fractions with a denominator of a multiple of 10 or 25 | | | | | | * read and write decimal numbers as fractions [for example, 0.71 = 71/100 ] * recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents * round decimals with 2 decimal places to the nearest whole number and to 1 decimal place * read, write, order and compare numbers with up to 3 decimal places * solve problems involving number up to 3 decimal places * recognise the per cent symbol (%) and understand that per cent relates to ‘number of parts per 100’, and write percentages as a fraction with denominator 100, and as a decimal fraction * solve problems which require knowing percentage and decimal equivalents of 1/2 , 1/4 , 1/5 , 2/5 , 4/5 and those fractions with a denominator of a multiple of 10 or 25 | | | * read and write decimal numbers as fractions [for example, 0.71 = 71/100 ] * recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents * round decimals with 2 decimal places to the nearest whole number and to 1 decimal place * read, write, order and compare numbers with up to 3 decimal places * solve problems involving number up to 3 decimal places * recognise the per cent symbol (%) and understand that per cent relates to ‘number of parts per 100’, and write percentages as a fraction with denominator 100, and as a decimal fraction * solve problems which require knowing percentage and decimal equivalents of 1/2 , 1/4 , 1/5 , 2/5 , 4/5 and those fractions with a denominator of a multiple of 10 or 25 | | |
| **White Rose Small steps** | * What is a fraction? * Equivalent fractions (1) * Equivalent fractions * Fractions greater than 1 * Improper fractions to mixed numbers * Mixed numbers to improper fractions * Number sequences * Compare and order fractions less than 1 * Compare and order fractions greater than 1 * Add and subtract fractions * Add fractions within 1 * Add 3 or more fractions * Add fractions * Add mixed numbers * Subtract fractions * Subtract mixed fractions * Subtract – breaking the whole * Subtract 2 mixed numbers * Multiply unit fractions by an integer * Multiply non-unit fractions by an integer * Multiply mixed numbers by integers * Calculate fractions of a quantity * Fractions of an amount * Using fractions as operators | | | | | | * Decimals up to 2 d.p. * Decimals as fractions (1) * Decimals as fractions (2) * Understand thousandths * Thousandths as decimals * Rounding decimals * Order and compare decimals * Understand percentages * Percentages as fractions and decimals * Equivalent F.D.P | | | * Adding decimals within 1 * Subtracting decimals within 1 * Complements to 1 * Adding decimals – crossing the whole * Adding decimals with the same numbers of decimal places * Subtracting decimals with the same numbers of decimal places * Adding decimals with a different number of decimal places * Subtracting decimals with a different number of decimal places * Adding and subtracting wholes and decimals * Decimal sequences * Multiplying decimals by 10, 100 and 1,000 * Dividing decimals by 10, 100 and 1,000 | | |
| **NCTEM Spine Teaching Points** | **Revisit 3.1, 3.2, 3.3, 3.4**  **3.7 – Finding equivalent fractions and simplifying fractions**  Discover how equivalent fractions have the same proportional relationship between the numerator and denominator, and therefore have the same numerical value. Convert between equivalent fractions and simplify fractions.  **3.8 – Common denomination: More adding and subtracting**  **Learn to add and subtract fractions with different denominators by first finding a common denominator. Compare fractions using a range of methods, including converting to a common denominator.**  **3.5 – Working across one whole: Improper fractions and mixed numbers**  Meet mixed numbers and improper fractions, and learn to convert between them; compare, order and place them on a number line. Extend addition and subtraction from within a whole to numbers greater than one whole.  **3.6 – Multiplying whole numbers and fractions**  Consider multiplication of whole numbers and proper fractions as both repeated addition and scaling. Understand that multiplication of a whole number by a proper fraction results in a smaller number. | | | | | | **1.23 – Composition and calculation: 1,000 and 4-digit numbers**  Explore the composition of 1,000 and four-digit numbers, using the partitioning structure, and make links to measures; introduce children to calculation across thousands boundaries, and extend column algorithms and rounding to four-digit numbers.  **1.24 – Composition and calculation: Hundredths and thousandths**  Building on segment 1.23, introduce children to hundredths (and thousandths) using both the partitioning structure and ideas of place value; apply additive facts and strategies, including column algorithms, and rounding to numbers with hundredths (and thousandths).  **3.10 – Linking fractions, decimals and percentages**  Make connections between fractions and previous work on decimals. Learn common fraction and decimal equivalences. Understand that percentages tell us about the proportion being considered. Find percentages of quantities. | | | **1.23 – Composition and calculation: 1,000 and 4-digit numbers**  Explore the composition of 1,000 and four-digit numbers, using the partitioning structure, and make links to measures; introduce children to calculation across thousands boundaries, and extend column algorithms and rounding to four-digit numbers.  **1.24 – Composition and calculation: Hundredths and thousandths**  Building on segment 1.23, introduce children to hundredths (and thousandths) using both the partitioning structure and ideas of place value; apply additive facts and strategies, including column algorithms, and rounding to numbers with hundredths (and thousandths).  **2.19 – Calculation: x/÷ decimal fractions by whole numbers**  Develop strategies for multiplying and dividing decimal fractions by whole numbers, including combining known facts with unitising, multiplying and dividing by 10 and 100, and using adjusting strategies.  **2.29 – Decimal place value knowledge, multiplication and division**  Develop efficient calculation strategies, and connect knowledge of multiplying and dividing by 10/100/1,000 to understanding of place value, including application to conversion between metric units of measure. | | |
| **Summer** | **Number: Decimals – 1 Week**  **(Continued from Spring 2)** | | **Geometry: Properties of Shape – 3 Weeks** | | **Geometry: Position & Direction – 2 Weeks** | | | **Measurement: Covering Units – 2 Weeks** | | | **Measurement: Volume – 1 Week** | |
| **National Curriculum Objectives** | * read and write decimal numbers as fractions [for example, 0.71 = 71/100] * recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents * round decimals with 2 decimal places to the nearest whole number and to 1 decimal place * read, write, order and compare numbers with up to 3 decimal places * solve problems involving number up to 3 decimal places * recognise the per cent symbol (%) and understand that per cent relates to ‘number of parts per 100’, and write percentages as a fraction with denominator 100, and as a decimal fraction * solve problems which require knowing percentage and decimal equivalents of 1/2 , 1/4 , 1/5 , 2/5 , 4/5 and those fractions with a denominator of a multiple of 10 or 25 | | * identify 3-D shapes, including cubes and other cuboids, from 2-D representations * know angles are measured in degrees: estimate and compare acute, obtuse and reflex angles * draw given angles, and measure them in degrees (°) * identify: * angles at a point and 1 whole turn (total 360°) * angles at a point on a straight line and half a turn (total 180°) * other multiples of 90° * use the properties of rectangles to deduce related facts and find missing lengths and angles * distinguish between regular and irregular polygons based on reasoning about equal sides and angles | | * identify, describe and represent the position of a shape following a reflection or translation, using the appropriate language, and know that the shape has not changed | | | * convert between different units of metric measure [for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre] * understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints * measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres * calculate and compare the area of rectangles (including squares), including using standard units, square centimetres (cm²) and square metres (m²), and estimate the area of irregular shapes * estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water] * solve problems involving converting between units of time * use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling | | | * convert between different units of metric measure [for example, kilometre and metre; centimetre and metre; centimetre and millimetre; gram and kilogram; litre and millilitre] * understand and use approximate equivalences between metric units and common imperial units such as inches, pounds and pints * measure and calculate the perimeter of composite rectilinear shapes in centimetres and metres * calculate and compare the area of rectangles (including squares), including using standard units, square centimetres (cm²) and square metres (m²), and estimate the area of irregular shapes * estimate volume [for example, using 1 cm³ blocks to build cuboids (including cubes)] and capacity [for example, using water] * solve problems involving converting between units of time * use all four operations to solve problems involving measure [for example, length, mass, volume, money] using decimal notation, including scaling | |
| **White Rose Small steps** | * Adding decimals within 1 * Subtracting decimals within 1 * Complements to 1 * Adding decimals – crossing the whole * Adding decimals with the same numbers of decimal places * Subtracting decimals with the same numbers of decimal places * Adding decimals with a different number of decimal places * Subtracting decimals with a different number of decimal places * Adding and subtracting wholes and decimals * Decimal sequences * Multiplying decimals by 10, 100 and 1,000 * Dividing decimals by 10, 100 and 1,000 | | * Identify angles * Compare and order angles * Measure angles in degrees * Measuring with a protractor (1) * Measuring with a protractor (2) * Drawing lines and angles accurately * Calculating angles on a straight line * Calculating angles around a point * Triangles * Quadrilaterals * Calculating lengths and angles in shapes * Regular and irregular polygons * Reasoning about 3-D shapes | | * Describe position * Draw on a grid * Position in the first quadrant * Translation * Translation with coordinates * Lines of symmetry * Complete a symmetric figure * Reflection * Reflection with coordinates | | | * Kilometres * Kilograms and kilometres * Millimetres and millilitres * Metric units * Imperial units * Converting units of time * Timetables | | | * What is volume? * Compare volume * Estimate volume * Estimate capacity | |
| **NCTEM Spine Teaching Points** | **1.23 – Composition and calculation: 1,000 and 4-digit numbers**  Explore the composition of 1,000 and four-digit numbers, using the partitioning structure, and make links to measures; introduce children to calculation across thousands boundaries, and extend column algorithms and rounding to four-digit numbers.  **1.24 – Composition and calculation: Hundredths and thousandths**  Building on segment 1.23, introduce children to hundredths (and thousandths) using both the partitioning structure and ideas of place value; apply additive facts and strategies, including column algorithms, and rounding to numbers with hundredths (and thousandths).  **2.19 – Calculation: x/÷ decimal fractions by whole numbers**  Develop strategies for multiplying and dividing decimal fractions by whole numbers, including combining known facts with unitising, multiplying and dividing by 10 and 100, and using adjusting strategies.  **2.29 – Decimal place value knowledge, multiplication and division**  Develop efficient calculation strategies, and connect knowledge of multiplying and dividing by 10/100/1,000 to understanding of place value, including application to conversion between metric units of measure. | | **N/A** | | **1.27- Negative numbers: Counting, comparing and calculating**  Introduce children to negative numbers, making links to everyday contexts; explore addition and subtraction below zero and across zero. | | | **1.24 – Composition and calculation: Hundredths and thousandths**  Building on segment 1.23, introduce children to hundredths (and thousandths) using both the partitioning structure and ideas of place value; apply additive facts and strategies, including column algorithms, and rounding to numbers with hundredths (and thousandths). | | | **2.20 – Multiplication with three factors and volume**  Use multiplication to calculate the volume of cuboids and shapes comprised of several cuboids; use division to solve associated inverse problems. Use associativity and commutativity to solve abstract multiplication problems with three factors. | |