**WHITE ROSE HUB SMALL STEPS FOR EACH NC OBJECTIVE (Year 3 & 4)**

**Each set of small steps links to where the areas are within the WHITE ROSE HUB materials to help with FLUENCY, REASONING & PROBLEM-SOLVING.**

**It is only a guide to be used with your own teaching assessment of the class. It is not necessarily split into terms, it is where the WRH material is for those steps.**

**PLEASE ENSURE: FLUENCY, REASONING & PROBLEM-SOLVING is being included in lessons, whether it be at a whole class level or opportunities for activities to ensure that learning is being deepened. Where there are only objectives for one term, please follow the outline for the year and split the objectives accordingly.**

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|  **YEAR 3: PLACE VALUE**  | **YEAR 4: PLACE VALUE**  |
| 1. count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number (1a-c)
2. recognise the place value of each digit in a three-digit number (hundreds, tens, ones) (1d)
3. compare and order numbers up to 1000 using < > = (1f)
4. identify, represent and estimate numbers using different representations e.g. positioning them on a number line and concrete representations (1e)
5. read and write numbers up to 1000 in numerals and in words (1a)
6. solve number problems and practical problems involving these ideas. (1g)
7. compare two given numbers, say which is more or less (including the use of < > =), and give a number lying between them e.g. what number is halfway between 7 and 8

Round 2 digit or 3 digit numbers to the nearest 10 or 100 | 1. recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) (1c)
2. count in multiples of 6, 7, 9, 25 and 1000 (1b)
3. find 1000 more or less than a given number (up to 10,000). (1a)
4. count backwards through zero to include negative numbers and understand that -2 > -3. (1b)
5. order and compare numbers beyond 1000 (up to 10,000) (1d)
6. identify, represent and estimate numbers using different representations (1e)
7. round any number to the nearest 10, 100 or 1000 (up to 10,000). (1f)
8. solve number and practical problems that involve all of the above and with increasingly large positive numbers (1g)
9. read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.
10. Partition, round and order four-digit whole numbers; use positive and negative numbers in context and position them on a number line; state inequalities using the symbols < and > (e.g. –3 > –5, –1 < +1)
11. Use the vocabulary of comparing and ordering numbers, and the symbols >, <, =; give a number lying between two given numbers and order a set of numbers
12. Multiply and divide whole numbers, then decimals, by 10, 100 or 1000
13. Use the vocabulary of estimation and approximation; make and justify estimates and approximations of numbers
14. Recognise and order negative number
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| **(AUT):**-Represent numbers to 100.-Partition numbers to 100.-Number line to 100.-Hundreds.-Represent numbers to 1000-Partition numbers to 1000-Flexible partitioning of numbers to 1000.-100s, 10s, 1s -Find 1, 10, 100 more/less than a given number-Number line to 1000.-Compare numbers to 1000-Order numbers to 1000.-Count in 50s. | SPRING: TO use TA to see what needs to be repeated or if more reasoning/PS needs to be done | As Spring | **(AUT):**-Represent numbers to 1000-Partition numbers to 1000-Number line to 1000-Thousands-Represent numbers to 10,000-Partition numbers to 10,000-Flexible partitioning to 10,000-Find 1, 10, 100, 1000 more/less-Number line to 10,000-Estimate on a number line to 10,000-Compare numbers to 10,000-Order numbers to 10,000-Roman numerals-Round to the nearest 10.-Round to the nearest 100.-Round to the nearest 10, 100 or 1000.  | SPRING:-   | As Spring |

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|  **YEAR 3: ADDITION & SUBTRACTION**  | **YEAR 4: ADDITION & SUBTRACTION**  |
| Add and subtract numbers mentally, including: 1. a three-digit number and ones (2c, f)
2. a three-digit number and tens (2d, g)
3. a three-digit number and hundreds
4. 3 single-digit numbers (2e)
5. Fluently recall number facts to 20. (2a)
6. add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction (2h-k)
7. estimate the answer to a calculation and use inverse operations to check answers (2l)

solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction.(2m-n) | 1. add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate (2a-b)
2. estimate and use inverse operations to check answers to a calculation (2d)
3. Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. (2c, e)
4. Add or subtract 1, 10, 100 or 1000 to/from whole numbers, and count on or back in tens, hundreds or thousands from any whole number up to 10000
5. Count on or back in repeated steps of 1, 10, 100, 1000
6. Partition into hundreds, tens and ones
7. Add several numbers
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| **(AUT):**-Apply number bonds within 10.-Add/subtract 1s-Add/subtract 10s-Add/subtract 100s-Spot the pattern-Add 1s across a 10-Subtract 1s across a 10-Subtract 10s across a 100.-Make connections-Add two numbers (no exchange)-Add two numbers (across a 10)-Add two numbers (across a 100)-Subtract two numbers (across a 10)-Add 2-digit and 3-digit numbers-Subtraxt a 2-digit number from a 3-digit number-Complements to 100-Estimate answers-Inverse operations-Make decisions | SPRING: TO use TA to see what needs to be repeated or if more reasoning/PS needs to be done | As Spring | **(AUT):**-Add/sub 1s, 10s, 100s and 1000s-Add two 4-digit numbers: no exchange-Add two 4-digit numbers: one exchange-Add two 4-digit numbers: more than one exchange-Sub two 4-digit numbers: no exchange-Sub two 4-digit numbers: one exchange-Sub two 4-digit numbers: more than one exchange-Efficient subtraction (easy ways)-Estimate answers-Checking strategies  | SPRING: TO use TA to see what needs to be repeated or if more reasoning/PS needs to be done | As Spring |

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|  **YEAR 3: MULTIPLICATION & DIVISION** | **YEAR 4: MULTIPLICATION & DIVISION**  |
| 1. recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables (3a-b)
2. write and calculate mathematical statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, **using mental and progressing to formal written methods** (3d-f)
3. solve problems, including missing number problems, involving multiplication and division, including positive integer scaling problems and correspondence problems in which n objects are connected to m objects. (3g-h)
4. write mathematical statements using the multiplication (x), division (÷), and equals (=) signs (3c)
5. double any multiple of 5 up to 100, e.g. double 35
6. halve any multiple of 10 up to 200, e.g. halve 170
7. Multiply and divide one digit and 2 digit numbers by 10 and 100
 | 1. recall multiplication and division facts for multiplication tables up to 12 × 12 (3a-b)
2. use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers (3c)
3. recognise and use factor pairs and commutativity in mental calculations
4. multiply two-digit and three-digit numbers by a one-digit number using formal written layout (3d-f)
5. solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects. (3g)
6. Multiply and divide whole numbers, then decimals, by 10, 100 or 1000
7. Develop and refine written methods for multiplication
8. Develop and refine written methods for division
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| **(AUT):**-Multiplication: equal groups-Use arrays-Multiples of 2-Multiples of 5 and 10-Sharing and grouping-Multiplying by 3-Dividing by 3-3x tables-Multiplying by 4-Dividing by 4-4x tables-multiplying by 8-Dividing by 8-8x tables-The 2, 4 and 8 x-tables. | SPR:-Multiples of 10.-Related calculations-Reasoning about multiplication-Multiply a 2-digit number by a 1-digit number (no exchange)-Multiply a 2-digit number by a 1-digit number (with exchange)-Link multiplication and division-Divide a 2-digit number by a 1-digit number (no exchange)-Divide a 2-digit number by a 1-digit number (flexible partitioning)-Divide a 2-digit number by a 1-digit number (with remainders)-Scaling-How many ways? | SUMMER: TO use TA to see what needs to be repeated or if more reasoning/PS needs to be done | **(AUT):**-Multiples of 3-Multiply and divide by 6-6 x-tables and division facts-Multiply and divide by 9-9 x-tables and division facts-The 3, 6 and 9 x-tables-Multiply and divide by 7-7 x-tables and division facts.-11 x-tables and division facts-12 x-tables and division facts-Multiply by 1 and 0-Divide by 1 and itself-Multiply three numbers | **(SPR):**-Factor pairs-Use factor pairs-Multiply by 10-Multiply by 100-Divide by 10-Divide by 100-Related facts – multiplication and division-Informal written methods for multiplication-Multiply 2-digit by 1-digit-Multiply 3-digit by 1-digit -Divide 2-digit by 1-digit (1)-Divide 2-digit by 1-digit (2)-Divide 3-digit by 1-digit-Correspondence problems -Efficient multiplication | SUMMER: TO use TA to see what needs to be repeated or if more reasoning/PS needs to be done |
|  **YEAR 3: FRACTIONS/DECIMALS/PERCENTAGES** | **YEAR 4: FRACTIONS/DECIMALS/PERCENTAGES**  |
| 1. count up and down in tenths; recognise that tenths arise from dividing an object into 10 equal parts and in dividing one-digit numbers or quantities by 10 (4i-j)
2. recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators (4e,h)
3. recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators
4. recognise and show, using diagrams, equivalent fractions with small denominators
5. add and subtract fractions with the same denominator within one whole [for example, 5/7+ 1/7 = 6/7] (4k)
6. compare and order unit fractions, and fractions with the same denominators (4d)
7. solve problems that involve all of the above.(4l)
8. Read and write proper fractions interpreting the denominator as the parts of a whole and the numerator as the number of parts
 | FRACTIONS:1. recognise and show, using diagrams, families of common equivalent fractions (4a-b, d)
2. count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten. (4c)
3. solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number (4e)
4. add and subtract fractions with the same denominator (4f-g)

DECIMALS1. recognise and write decimal equivalents of any number of tenths or hundredths (4h)
2. recognise and write decimal equivalents to ¼, ½, ¾ (4i)
3. find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths (4j)
4. round decimals with one decimal place to the nearest whole number (4k)
5. compare numbers with the same number of decimal places up to two decimal places (4l)
6. solve simple measure and money problems involving fractions and decimals to two decimal places. (4m)
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| **(AUT):** | SPRING:-Understand the denominators of unit fractions-Compare and order unit fractions-Understand the denominators of non-unit fractions-Understand the whole-Compare and order non-unit fractions-Fractions and scales-Fractions on a number line-Equivalent fractions on a number line-Equivalent factions as bar models. | **(SUM):**-Add fractions-Subtract fractions-Partition the whole-Unit fractions of a set of objects-Non-unit fractions of a set of objects-Reasoning with fractions of an amount | AUTUMN: TO look at obj in SPR to see what could be covered first. | **(SPR):** **FRACTIONS**-Understand the whole-Count beyond 1-Partition a mixed number-Number lines with mixed numbers-Compare and order mixed numbers-Understand improper fractions-Convert mixed numbers into improper fractions-Convert improper fractions into mixed numbers-Equivalent fractions on a number line-Equivalent fraction families-Add two or more fractions-Add fractions and mixed numbers-Subtract two fractions-Subtract from whole amounts-Subtract from mixed numbers.**DECIMALS**-Tenths as fractions-Tenths as decimals-Tenths on a place value chart-Tenths on a number line-Divide a 1-digit number by 10-Divide a 2-digit number by 10-Hundredths as fractions-Hundredths as decimals-Hundredths on a place value chart-Divide a 1 or 2-digit number by 100.-Divide 1 or 2-digit by 100  | **Decimals (SUM):**-Make a whole with tenths-Make a whole with hundredths-Partition decimals-Flexibly partition decimals-Compare decimals-Order decimals-Round decimals to nearest whole-Halves and quarters as decimals  |

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|  **YEAR 3: GEOMETRY**  | **YEAR 4: GEOMETRY (PROPERTIES OF SHAPE)** |
| 1. draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them (6a-b)
2. recognise angles as a property of shape or a description of a turn (6f-g)
3. identify right angles, recognise that two right angles make a half-turn, three make three quarters of a turn and four a complete turn; identify whether angles are greater than or less than a right angle (6d-e, g)
4. identify horizontal and vertical lines and pairs of perpendicular and parallel lines.(6c)
5. Draw and complete shapes with reflective symmetry; draw the reflection of a shape in a mirror line along one side
 | 1. compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes (6a-b)
2. identify acute and obtuse angles and compare and order angles up to two right angles by size (6c-d)
3. identify lines of symmetry in 2-D shapes presented in different orientations (6e)
4. complete a simple symmetric figure with respect to a specific line of symmetry. (6f-g)
5. Draw polygons and classify them by identifying their properties, including their line symmetry
6. Describe and visualise 3-D and 2-D shapes; classify them according to their properties
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| AUTUMN: TO look at obj in SPR to see what could be covered first. | Spring: TO look at obj in SPR to see what could be covered first. | **(SUM):**-Turns and angles-Right angles in shapes-Compare angles-Measure and Draw accurately-Horizontal and vertical-Parallel and perpendicular-Recognise and describe 2D shapes-Draw polygons-Recognise and describe 3D shapes-Make 3D shapes. | AUTUMN: TO look at obj in SPR to see what could be covered first. | Spring: TO look at obj in SPR to see what could be covered first. | **(SUM):**-Understand angles as turnsIdentify angles-Compare and order angles-Triangles-Quadrilaterals-Polygons-Lines of symmetry-Complete a symmetric figure  |

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|  **YEAR 3: GEOMETRY (POSITION & DIRECTION)** | **YEAR 4: GEOMETRY (POSITION & DIRECTION)** |
| \*NO SPECIFIC OBJECTIVES | 1. describe positions on a 2-D grid as coordinates in the first quadrant (7a)
2. describe movements between positions as translations of a given unit to the left/right and up/down (7b)
3. plot specified points and draw sides to complete a given polygon. (7c)
4. Recognise horizontal and vertical line
5. Know that angles are measured in degrees and that one whole turn is 360°
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|  **YEAR 3: MEASUREMENT** | **YEAR 4: MEASUREMENT** |
| 1. measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml) (5a-h)
2. measure the perimeter of simple 2-D shapes
3. add and subtract amounts of money to give change (at least from £10), using both £ and p in practical contexts (5i-k)
4. tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks (5l-m)
5. estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes and hours; use vocabulary such as o’clock, a.m./p.m., morning, afternoon, noon and midnight
6. know the number of seconds in a minute and the number of days in each month, year and leap year
7. compare durations of events [for example to calculate the time taken by particular events or tasks]. (5n-o)
8. Continue to measure using the appropriate tools and units, progressing to using a wider range of measures, including comparing and using mixed and simple equivalents of mixed units
9. Read to the nearest division and half division scales that are numbered or partially numbered; use the information to measure and draw to a suitable degree of accuracy
 | 1. Convert between different units of measure [for example, kilometre to metre; hour to minute] (5a-d)
2. measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres (and know formula for calculating this) (5i)
3. find the area of rectilinear shapes by counting squares (5j)
4. estimate, compare and calculate different measures, including money in pounds and pence (5f-h)
5. read, write and convert time between analogue and digital 12- and 24-hour clocks (5e)
6. solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days (5k)
7. Choose and use standard metric units and their abbreviations when estimating, measuring and recording length, weight and capacity; know the meaning of ‘kilo’, ‘centi’ and ‘milli’ and, where appropriate, use decimal notation to record measurements (e.g. 1.3 m or 0.6 kg)
8. Draw rectangles and measure and calculate their perimeters; find the area of rectilinear shapes drawn on a square grid by counting squares
9. Read time to the nearest minute; use am, pm and 12-hour clock notation; choose units of time to measure time intervals; calculate time intervals from clocks and timetables
10. Read the time from clocks, calendars and timetables - half class out at tournament
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| AUTUMN: TO look at obj in SPR to see what could be covered first. | **Length & perimeter:**-Measure in metres and cm-Measure in mm-measure in cm and mm-Equivalent lengths – m/cm-Equivalent lengths – mm/cm-Compare lengths-Add lengths-Subtract lengths-What is perimeter?-Measure perimeter-Calculate perimeter**Mass and capacity:**-Use scales-Measure mass in grams-Measure mass in KG and G-Equivalent masses (kg and g)-Compare mass-Add/sub mass-Measure capacity and volume in ml-Measure capacity and volume in L and ml.-Equivalent capacities and volumes (l and ml)-Compare capacity and volume-Add/sub capacity and volume | **Time (SUM):**-Roman numerals to 12-Telling the time to 5 mins-Telling the time to the min-Read time on a digital clock-AM and PM-Years, months and days-Days and hours-Hours and minutes – Use start and end times.-Hours and minutes – use durations-Minutes and seconds-Units of time-Solve problems with time.**Money (SPR):**-Pounds and pence-Converting pounds to pence-Adding money-Subtracting money-Finding change | **Area AUT):**-What is area?-Counting squares-Making shapes-Comparing area  | **Length & perimeter (AUT):**-Measure in Kilometres and metres-Equivalent lengths (km and metres)-Perimeter on a grid-Perimeter of a rectangle-Perimeter of rectilinear shapes-Find missing lengths in rectilinear shapes-Calculate the perimeter of rectilinear shapes-Perimeter of regular polygons-Perimeter of polygons | **Money (SUM):**-Writing money using decimals-Convert between Pounds and pence-Compare amounts of money-Estimating money-Calculate with money-Solve problems with money**Time:**-Years, months, weeks and days-Hours, minutes and seconds-Convert between analogue and digital times-Convert to the 24-hour clock-Convert from the 24-hour clock.  |

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|  **YEAR 3: STATISTICS**  | **YEAR 4: STATISTICS** |
| 1. interpret and present data using bar charts, pictograms and tables (8a-c)
2. solve one-step and two-step questions [for example, ‘How many more?’ and ‘How many fewer?’] using information presented in scaled bar charts and pictograms and tables (8d-f)
3. Use Venn diagrams or Carroll diagrams to sort data and objects using more than one criterion
 | 1. interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs. (8a-b)
2. solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. (8c-d)
3. Use Venn diagrams or Carroll diagrams to sort data and objects using more than one criterion
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| AUTUMN: TO look at obj in SPR to see what could be covered first. |  | **(SUMMER):**-Interpret Pictograms-Draw pictograms-Interpret Bar charts-Draw bar charts-Collect and represent data-Two-way Tables | AUTUMN: TO look at obj in sum to see what could be covered first? |  | **(SUM):**-Interpret charts-Comparison, sum and difference-Interpret line graphs-Draw line graphs  |