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Mathematics Curriculum Progression of Key Objectives Mapping

**Place Value**

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| **COUNTING** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| count to and across 100, |  |  | count backwards through | interpret negative | use negative numbers in |
| forwards and backwards, | zero to include negative | numbers in context, count | context, and calculate |
| beginning with 0 or 1, or | numbers | forwards and backwards | intervals across zero |
| from any given number |  | with positive and negative |  |
|  |  | whole numbers, including |  |
|  |  | through zero |  |
| count, read and write | count in steps of 2, 3, and | count from 0 in multiples | count in multiples of 6, 7, | count forwards or |  |
| numbers to 100 in | 5 from 0, and in tens from | of 4, 8, 50 and 100; | 9, 25 and 1000 | backwards in steps of |
| numerals; count in | any number, forward or |  |  | powers of 10 for any given |
| multiples of twos, fives | backward |  |  | number up to 1000 000 |
| and tens |  |  |  |  |
| given a number, identify one more and one less |  | find 10 or 100 more or less than a given number | find 1000 more or less than a given number |  |  |
| **COMPARING NUMBERS** | | | | | |
| use the language of: equal | compare and order | compare and order | order and compare | read, write, order and | read, write, order and |
| to, more than, less than | numbers from 0 up to | numbers up to 1000 | numbers beyond 1000 | compare numbers to at | compare numbers up to |
| (fewer), most, least | 100; use <, > and = signs |  |  | least 1 000 000 and  determine the value of | 10 000000 and determine  the value of each digit |
| *compare numbers with the*  *same number of decimal* |
|  |  |  | *places up to two decimal* | each digit | (appears also in Reading and |
|  |  |  | *places* | (appears also in Reading and | Writing Numbers) |
|  |  |  | (copied from Fractions) | Writing Numbers) |  |
| **IDENTIFYING, REPRESENTING AND ESTIMATING NUMBERS** | | | | | |
| identify and represent | identify, represent and | identify, represent and | identify, represent and |  |  |
| numbers using objects | estimate numbers using | estimate numbers using | estimate numbers using |
| and pictorial | different representations, | different representations | different representations |
| representations including | including the number line |  |  |
| the number line |  |  |  |

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| **READING AND WRITING NUMBERS** (including Roman Numerals) | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| read and write numbers from 1 to 20 in numerals and words. | read and write numbers to at least 100 in numerals and in words | read and write numbers up to 1000 in numerals and in words | 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. | read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit  (appears also in Comparing Numbers) | read, write, order and compare numbers up to 10 000 000 and determine the value of each digit (appears also in Understanding Place Value) |
| *tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24- hour clocks*  (copied from Measurement) | read Roman numerals to 1000 (M) and recognise years written in Roman numerals. |
| **UNDERSTANDING PLACE VALUE** | | | | | |
|  | recognise the place value of each digit in a two-digit number (tens, ones) | recognise the place value of each digit in a three- digit number (hundreds, tens, ones) | recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones) | read, write, order and compare numbers to at least 1 000 000 and determine the value of each digit  (appears also in Reading and Writing Numbers)  *recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents*  (copied from Fractions) | read, write, order and compare numbers up to 10 000 000 and determine the value of each digit  (appears also in Reading and Writing Numbers) |
| *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 units, tenths and hundredths*  (copied from Fractions) | *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*  (copied from Fractions) |

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| **ROUNDING** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  |  |  | round any number to the nearest 10, 100 or 1 000 | round any number up to 1 000 000 to the nearest  10, 100, 1 000, 10 000 and  100 000 | round any whole number to a required degree of accuracy |
|  |  |  | *round decimals with one decimal place to the nearest whole number*  (copied from Fractions) | *round decimals with two decimal places to the nearest whole number and to one decimal place*  (copied from Fractions) | *solve problems which require answers to be rounded to specified degrees of accuracy* (copied from Fractions) |
| **PROBLEM SOLVING** | | | | | |
|  | use place value and number facts to solve problems | solve number problems and practical problems involving these ideas. | solve number and practical problems that involve all of the above and with increasingly large positive numbers | solve number problems and practical problems that involve all of the above | solve number and practical problems that involve all of the above |

**Addition and Subtraction**

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| **NUMBER BONDS** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| represent and use number bonds and related subtraction facts  within 20 | recall and use addition and subtraction facts to 20 fluently, and derive and  use related facts up to 100 |  |  |  |  |
| **MENTAL CALCULATION** | | | | | |
| add and subtract one- digit and two-digit numbers to 20, including zero | add and subtract numbers using concrete objects, pictorial representations, and mentally, including:   * a two-digit number and ones * a two-digit number and tens * two two-digit numbers * adding three one-digit numbers | add and subtract numbers mentally, including:   * a three-digit number and ones * a three-digit number and tens * a three-digit number and hundreds |  | add and subtract numbers mentally with increasingly large numbers | perform mental calculations, including with mixed operations and large numbers |
| read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs  (appears also in Written Methods) | show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot |  |  |  | use their knowledge of the order of operations to carry out calculations involving the four operations |

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| **WRITTEN METHODS** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| read, write and interpret mathematical statements involving addition (+), subtraction (-) and equals (=) signs  (appears also in Mental Calculation) |  | add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction | add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate | add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) |  |
| **INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS** | | | | | |
|  | recognise and use the inverse relationship between addition and subtraction and use this to check calculations and solve missing number  problems. | estimate the answer to a calculation and use inverse operations to check answers | estimate and use inverse operations to check answers to a calculation | use rounding to check answers to calculations and determine, in the context of a problem, levels of accuracy | use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy. |

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| **PROBLEM SOLVING** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as  7 = 🗆 - 9 | solve problems with addition and subtraction:   * using concrete objects and pictorial representations, including those involving numbers, quantities and measures * applying their increasing knowledge of mental and written   methods | solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction | solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why | solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why | solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why |
| *solve simple problems in a practical context involving addition and subtraction of money of the same unit, including giving change* (copied from Measurement) | Solve problems involving addition, subtraction, multiplication and division |

**Multiplication and Division**

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| **MULTIPLICATION & DIVISION FACTS** | | | | | | | | | | |
| Year 1 | Year 2 | Year 3 | | | Year 4 | | Year 5 | | | Year 6 |
| *count in multiples of twos, fives and tens*  (copied from Number and Place Value) | *count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward*  (copied from Number and  Place Value) | *count from 0 in multiples of 4, 8, 50*  *and 100*  (copied from Number and Place Value) | | | *count in multiples of 6, 7, 9, 25 and 1 000*  (copied from Number and Place Value) | | *count forwards or backwards in steps of powers of 10 for any given number up to*  *1 000 000*  (copied from Number and  Place Value) | | |  |
|  | recall and use multiplication and division facts for the 2, 5  and 10 multiplication tables, including recognising odd and even numbers | recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables | | | recall multiplication and division facts for multiplication tables up to 12 × 12 | |  | | |  |
| **MENTAL CALCULATION** | | | | | | | | | | |
|  |  | write and calculate mathematical | | | use place value, | | multiply and divide | | perform mental | |
| statements for multiplication and | | | known and derived | | numbers mentally | | calculations, including with | |
| division using the multiplication | | | facts to multiply and | | drawing upon known | | mixed operations and large | |
| tables that they know, including | | | divide mentally, | | facts | | numbers | |
| for two-digit numbers times one- | | | including: multiplying | |  | |  | |
| digit numbers, using mental and | | | by 0 and 1; dividing | |  | |  | |
| progressing to formal written | | | by 1; multiplying | |  | |  | |
| methods (appears also in Written | | | together three | |  | |  | |
| Methods) | | | numbers | |  | |  | |
|  | show that multiplication |  | | | recognise and use | | multiply and divide | | *associate a fraction with division and calculate decimal fraction equivalents (e.g.*  *0.375) for a simple fraction (e.g. 3/ )*  *8*  (copied from Fractions) | |
| of two numbers can be | factor pairs and | | whole numbers and | |
| done in any order | commutativity in | | those involving decimals | |
| (commutative) and | mental calculations | | by 10, 100 and 1000 | |
| division of one number by | (appears also in | |  | |
| another cannot | Properties of Numbers) | |  | |
| **WRITTEN CALCULATION** | | | | | | | | | | |
| Year 1 | Year 2 | | Year 3 | Year 4 | | Year 5 | | Year 6 | | |
|  | calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs | | 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  (appears also in Mental Methods) | multiply two-digit and three-digit numbers by a one- digit number using formal written layout | | 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 multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication | | |
|  |  | |  |  | | 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 | | divide numbers up to 4-digits by a two-digit whole number using the formal written method of short division where appropriate for the context 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 | | |
|  |  | |  |  | |  | | *use written division methods in cases where the answer has up to two decimal places* (copied from Fractions (including decimals)) | | |

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| **PROPERTIES OF NUMBERS: MULTIPLES, FACTORS, PRIMES, SQUARE AND CUBE NUMBERS** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  |  |  | recognise and use factor pairs and commutativity in mental calculations (repeated) | identify multiples and factors, including finding all factor pairs of a number, and common  factors of two numbers. | identify common factors, common multiples and prime numbers |
|  | know and use the vocabulary of prime numbers, prime factors and composite (non-  prime) numbers | *use common factors to*  *simplify fractions; use common multiples to express fractions in the same denomination*  (copied from Fractions) |
| establish whether a number up to 100 is prime and recall prime  numbers up to 19 |
|  |  |  |  | recognise and use square | *calculate, estimate and* |
| numbers and cube | *compare volume of cubes* |
| numbers, and the  2  notation for squared ( )  3 | *and cuboids using standard*  *units, including centimetre*  *3*  *cubed (cm ) and cubic* |
| and cubed ( ) | *3*  *metres (m ), and extending* |
|  | *3* |
|  | *to other units such as mm* |
|  | *3* |
|  | *and km* |
|  | (copied from Measures) |

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| **ORDER OF OPERATIONS** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  |  |  |  |  | use their knowledge of the order of operations to carry out calculations involving the four operations |
| **INVERSE OPERATIONS, ESTIMATING AND CHECKING ANSWERS** | | | | | |
|  |  | *estimate the answer to a calculation and use inverse operations to check answers* (copied from Addition and Subtraction) | *estimate and use inverse operations to check answers to a calculation*  (copied from Addition and Subtraction) |  | use estimation to check answers to calculations and determine, in the context of a problem, levels of accuracy |

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| **PROBLEM SOLVING** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher | solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts | 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 | 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 | 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 |
| 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 | *solve problems involving similar shapes where the scale factor is known or can be found*  (copied from Ratio and Proportion) |

**Fractions, Decimals and Percentages**

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| **COUNTING IN FRACTIONAL STEPS** | | | | | | | | | | |
| Year 1 | | Year 2 | | Year 3 | | Year 4 | | Year 5 | | Year 6 |
|  | | *Pupils should count in fractions up to 10, starting from any number and using the1/2 and 2/4 equivalence on the number line (Non*  *Statutory Guidance)* | | count up and down in tenths | | count up and down in hundredths | |  | |  |
| **RECOGNISING FRACTIONS** | | | | | | | | | | |
| recognise, find and name a half as one of two equal parts of an object, shape or quantity | | recognise, find, name and  1 1 2  write fractions / , / , /  3 4 4  3  and / of a length, shape,  4 | | recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions | | recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten | | recognise and use thousandths and relate them to tenths, hundredths and decimal | |  |
|  | | set of objects or quantity | | with small denominators | |  | | equivalents  (appears also in Equivalence) | |
|  | |  | | recognise that tenths arise | |  | |  | |
|  | |  | | from dividing an object | |  | |  | |
|  | |  | | into 10 equal parts and in | |  | |  | |
|  | |  | | dividing one – digit | |  | |  | |
|  | |  | | numbers or quantities by | |  | |  | |
|  | |  | | 10. | |  | |  | |
| recognise, find and name | |  | | recognise and use | |  | |  | |
| a quarter as one of four | |  | | fractions as numbers: unit | |  | |  | |
| equal parts of an object, | |  | | fractions and non-unit | |  | |  | |
| shape or quantity | |  | | fractions with small | |  | |  | |
|  | |  | | denominators | |  | |  | |
| **COMPARING FRACTIONS** | | | | | | | | | | |
|  | |  | | compare and order unit | |  | | compare and order | | compare and order |
| fractions, and fractions | | fractions whose | | fractions, including |
| with the same | | denominators are all | | fractions >1 |
| denominators | | multiples of the same | |  |
|  | | number | |  |
| **COMPARING DECIMALS** | | | | | | | | | | |
| Year 1 | Year 2 | | Year 3 | | Year 4 | | Year 5 | | Year 6 | |
|  |  | |  | | compare numbers with the same number of decimal places up to two decimal  places | | read, write, order and compare numbers with up to three decimal places | | identify the value of each digit in numbers given to three decimal places | |
| **ROUNDING INCLUDING DECIMALS** | | | | | | | | | | |
|  |  | |  | | round decimals with one decimal place to the nearest  whole number | | round decimals with two decimal places to the nearest whole number and to  one decimal place | | solve problems which require answers to be rounded to  specified degrees of accuracy | |
| **EQUIVALENCE (INCLUDING FRACTIONS, DECIMALS AND PERCENTAGES)** | | | | | | | | | | |
|  | write simple fractions | | recognise and show, using diagrams, equivalent fractions with small denominators | | recognise and show, using | | identify, name and write equivalent | | use common factors to simplify | |
| 1  e.g. / of 6 = 3 and | | diagrams, families of | | fractions of a given fraction, | | fractions; use common | |
| 2  recognise the  2 | | common equivalent  fractions | | represented visually, including tenths  and hundredths | | multiples to express fractions  in the same denomination | |
| equivalence of / and | |  | |  | |  | |
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| 2 | |  | |  | |  | |
|  |  | |  | | recognise and write decimal equivalents of any number of tenths or hundredths | | read and write decimal numbers as  71  fractions (e.g. 0.71 = / )  100 | | associate a fraction with division and calculate decimal fraction equivalents (e.g.  0.375) for a simple fraction  3  (e.g. / )  8 | |
| recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents | |
|  |  | |  | | recognise and write decimal  1 1 3  equivalents to / ; / ; /  4 2 4 | | recognise the per cent symbol (%) and understand that per cent relates to “number of parts per hundred”, and write percentages as a fraction with  denominator 100 as a decimal fraction | | recall and use equivalences between simple fractions, decimals and percentages, including in different contexts. | |

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| **ADDITION AND SUBTRACTION OF FRACTIONS** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  |  | add and subtract fractions with the same denominator within one  5 1 6  whole (e.g. / + / = / )  7 7 7 | add and subtract fractions with the same denominator | add and subtract fractions with the same denominator and multiples of the same  number | add and subtract fractions with different denominators and mixed numbers, using the concept of equivalent fractions |
| recognise mixed numbers and improper fractions and convert from one form to the other and write mathematical statements > 1 as a mixed  2 4 6  number (e.g. / + / = /  5 5 5  1  = 1 / )  5 |
| **MULTIPLICATION AND DIVISION OF FRACTIONS** | | | | | |
|  |  |  |  | multiply proper fractions and mixed numbers by whole numbers, supported by materials and diagrams | multiply simple pairs of proper fractions, writing the answer in its simplest  1 1 1  form (e.g. / × / = / )  4 2 8 |
| multiply one-digit numbers with up to two decimal places by whole  numbers |
|  |  |  |  |  | divide proper fractions by  1  whole numbers (e.g. / ÷  3  1  2 = / )  6 |

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| **MULTIPLICATION AND DIVISION OF DECIMALS** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  |  |  |  |  | multiply one-digit numbers with up to two decimal places by whole  numbers |
|  |  |  | 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 |  | multiply and divide numbers by 10, 100 and 1000 where the answers are up to three decimal places |
|  |  |  |  |  | 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 |
|  |  |  |  |  | associate a fraction with division and calculate decimal fraction equivalents (e.g. 0.375) for a simple fraction  (e.g. 3/8) |
|  |  |  |  |  | use written division methods in cases where the answer has up to two decimal places |

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| **PROBLEM SOLVING** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  |  | solve problems that involve all of the above | 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 | solve problems involving numbers up to three decimal places |  |
|  |  |  | solve simple measure and money problems involving fractions and decimals to two decimal places. | solve problems which require knowing percentage and decimal  1 1 1  equivalents of / , / , / ,  2 4 5  2 4  / , / and those with a  5 5  denominator of a multiple  of 10 or 25. |  |

**Ratio and Proportion**

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| **Statements only appear in Year 6 but should be connected to previous learning, particularly fractions and multiplication and division** | | | | | |
|  |  |  |  |  | Year 6 |
|  |  |  |  |  | solve problems involving the relative sizes of two quantities where missing values can be found by using integer multiplication and division  facts |
|  |  |  |  |  | solve problems involving the calculation of percentages [for example, of measures, and such as 15% of 360] and the use of percentages for  comparison |
|  |  |  |  |  | solve problems involving similar shapes where the scale factor is known or  can be found |
|  |  |  |  |  | solve problems involving unequal sharing and grouping using knowledge  of fractions and multiples. |

**Algebra**

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| **EQUATIONS** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| *solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and* ***missing number problems*** *such as*  *7 =* 🗆 *- 9*  (copied from Addition and Subtraction) | *recognise and use the inverse relationship between addition and subtraction and use this to check calculations and* ***missing number*** *problems.*  (copied from Addition and Subtraction) | solve problems, *including* ***missing number*** *problems, using number facts, place value, and more complex addition and subtraction.* (copied from Addition and Subtraction) |  | *use the properties of rectangles to deduce related facts and find* ***missing lengths and angles***  (copied from Geometry: Properties of Shapes) | express missing number problems algebraically |
| *solve problems, including* ***missing number*** *problems, involving multiplication and division, including integer scaling*  (copied from  Multiplication and Division) |
|  | *recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100* (copied from Addition and  Subtraction) |  |  |  | find pairs of numbers that satisfy number sentences involving two unknowns |
| *represent and use number bonds and related subtraction facts within 20* (copied from Addition and Subtraction) |  |  |  |  | enumerate all possibilities of combinations of two variables |

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| **FORMULAE** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  |  |  | *Perimeter can be expressed algebraically as 2(a + b) where a and b are the dimensions in the same unit. (Copied from NSG measurement)* |  | use simple formulae |
| *recognise when it is possible to use* ***formulae*** *for area and volume of shapes*  (copied from Measurement) |
| **SEQUENCES** | | | | | |
| *sequence events in chronological order using language such as: before and after, next, first, today, yesterday, tomorrow, morning, afternoon and evening*  (copied from Measurement) | *compare and sequence intervals of time*  (copied from Measurement) |  |  |  | generate and describe linear number sequences |
| *order and arrange combinations of mathematical objects in patterns*  (copied from Geometry: position and direction) |

**Measurement**

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| **COMPARING AND ESTIMATING** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| compare, describe and | compare and order |  | estimate, compare | calculate and compare the area of squares and rectangles including using standard units, square  2  centimetres (cm ) and  2  square metres (m ) and  estimate the area of irregular shapes (also  included in measuring) | calculate, estimate and compare volume of cubes and cuboids using standard units, including centimetre  3  cubed (cm ) and cubic  3  metres (m ), and  extending to other  3  units such as mm and  3  km . |
| solve practical problems | lengths, mass, | and calculate |
| for: | volume/capacity and | different measures, |
| \* lengths and heights | record the results using | including money in |
| [e.g. long/short, | >, < and = | pounds and pence |
| longer/shorter, |  | (also included in |
| tall/short, double/half] |  | Measuring) |
| \* mass/weight [e.g. |  |  |
| heavy/light, heavier |  |  |
| than, lighter than] |  |  |
| estimate volume (e.g.  3  using 1 cm blocks to  build cubes and cuboids) and capacity (e.g. using water) |
| \* capacity and volume |  |  |
| [e.g. full/empty, more |  |  |
| than, less than, half, |  |  |
| half full, quarter] |  |  |
| \* time [e.g. quicker, |  |  |
| slower, earlier, later] |  |  |
| sequence events in chronological order using language [e.g. before and after, next, first, today, yesterday, tomorrow,  morning, afternoon and evening] | compare and sequence intervals of time | compare durations of events, for example to calculate the time taken by particular events or tasks |  |  |  |
|  |  | estimate and read time with increasing accuracy to the nearest minute; record and compare time in terms of seconds, minutes, hours and o’clock; use vocabulary such as a.m./p.m., morning,  afternoon, noon and midnight (appears also in Telling the Time) |  |  |  |

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| **MEASURING and CALCULATING** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| measure and begin to | choose and use appropriate | measure, compare, add | estimate, compare | use all four operations to | solve problems involving |
| record the following: | standard units to estimate and | and subtract: **lengths** | and calculate | solve problems involving | the calculation and |
| \* **lengths and heights** | measure **length/height** in any | (m/cm/mm); **mass** | **different measures,** | measure (e.g. **length,** | conversion of **units of** |
| \* **mass/weight** | direction (m/cm); **mass** (kg/g); | (kg/g); **volume/capacity** | including **money in** | **mass, volume, money**) | **measure**, using decimal |
| \* **capacity and volume** | **temperature** (°C); **capacity** | (l/ml) | **pounds and pence** | using decimal notation | notation up to three |
| \* **time** (hours, minutes, | (litres/ml) to the nearest |  | (appears also in | including scaling. | decimal places where |
| seconds**)** | appropriate unit, using rulers, |  | Comparing) |  | appropriate |
|  | scales, thermometers and |  |  |  | (appears also in Converting) |
|  | measuring vessels |  |  |  |  |
|  |  | measure the **perimeter** | measure and | measure and calculate the | recognise that shapes |
| of simple 2-D shapes | calculate the | **perimeter** of composite | with the same areas can |
|  | **perimeter** of a | rectilinear shapes in | have different **perimeters** |
|  | rectilinear figure | centimetres and metres | and vice versa |
|  | (including squares) in |  |  |
|  | centimetres and |  |  |
|  | metres |  |  |

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| **MEASURING and CALCULATING** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| recognise and know the value of different denominations of **coins and notes** | recognise and use symbols for pounds **(£) and pence (p)**; combine amounts to make a particular value | add and subtract amounts of **money** to give change, using both £ and p in practical contexts |  |  |  |
| find different combinations of coins that equal the same amounts of money |
| **solve simple problems** in a practical context involving addition and subtraction of money of the same  unit, including giving change |
|  |  |  | find the area of rectilinear shapes by counting squares | calculate and compare the area of squares and rectangles including using standard units,  2  square centimetres (cm ) and  2  square metres (m ) and  estimate the area of irregular shapes  *recognise and use square numbers and cube numbers, and*  *2*  *the notation for squared ( ) and*  *3*  *cubed ( )*  (copied from Multiplication and Division) | calculate the area of parallelograms and triangles |
| calculate, estimate and compare volume of cubes and cuboids using standard units, including cubic  3  centimetres (cm ) and cubic metres  3  (m ), and extending to other units [e.g.  3 3  mm and km ]. |
| recognise when it is possible to use formulae for area and volume of shapes |

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| **TELLING THE TIME** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| tell the time to the hour | tell and write the time to | tell and write the time | read, write and convert |  |  |
| and half past the hour and | five minutes, including | from an analogue clock, | time between analogue |
| draw the hands on a clock | quarter past/to the hour | including using Roman | and digital 12 and 24-hour |
| face to show these times. | and draw the hands on a | numerals from I to XII, and | clocks |
|  | clock face to show these | 12-hour and 24-hour | (appears also in Converting) |
|  | times. | clocks |  |
| recognise and use | know the number of | estimate and read |  |  |  |
| language relating to dates, | minutes in an hour and | time with increasing |
| including days of the | the number of hours in a | accuracy to the nearest |
| week, weeks, months and | day. | minute; record and |
| years | (appears also in Converting) | compare time in terms of |
|  |  | seconds, minutes, hours |
|  |  | and o’clock; use |
|  |  | vocabulary such as |
|  |  | a.m./p.m., morning, |
|  |  | afternoon, noon and |
|  |  | midnight |
|  |  | (appears also in Comparing |
|  |  | and Estimating) |
|  |  |  | solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days  (appears also in Converting) | solve problems involving converting between units of time |  |

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| **CONVERTING** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  | know the number of minutes | know the number of | convert between different | convert between | use, read, write and |
| in an hour and the number of | seconds in a minute and the | units of measure (e.g. | different units of metric | convert between standard |
| hours in a day. | number of days in each | kilometre to metre; hour | measure (e.g. kilometre | units, converting |
| (appears also in Telling the Time) | month, year and leap year | to minute) | and metre; centimetre | measurements of length, |
|  |  |  | and metre; centimetre | mass, volume and time |
|  |  |  | and millimetre; gram and | from a smaller unit of |
|  |  |  | kilogram; litre and | measure to a larger unit, |
|  |  |  | millilitre) | and vice versa, using |
|  |  |  |  | decimal notation to up to |
|  |  |  |  | three decimal places |
|  |  |  | read, write and convert | solve problems involving | solve problems involving |
| time between analogue | converting between units | the calculation and |
| and digital 12 and 24-hour | of time | conversion of units of |
| clocks |  | measure, using decimal |
| (appears also in Converting) |  | notation up to three |
|  |  | decimal places where |
|  |  | appropriate |
|  |  | (appears also in Measuring |
|  |  | and Calculating) |
|  |  |  | solve problems involving | understand and use | convert between miles |
| converting from hours to | equivalences between | and kilometres |
| minutes; minutes to | metric units and common |  |
| seconds; years to months; | imperial units such as |  |
| weeks to days | inches, pounds and pints |  |
| (appears also in Telling the |  |  |
| Time) |  |  |

**Geometry: Properties of Shape**

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| **IDENTIFYING SHAPES AND THIER PROPERTIES** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| recognise and name | identify and describe the |  | identify lines of symmetry | identify 3-D shapes, | recognise, describe and |
| common 2-D and 3-D | properties of 2-D shapes, | in 2-D shapes presented in | including cubes and other | build simple 3-D shapes, |
| shapes, including: | including the number of | different orientations | cuboids, from 2-D | including making nets |
| \* 2-D shapes [e.g. | sides and line symmetry in |  | representations | (appears also in Drawing and |
| rectangles (including | a vertical line |  |  | Constructing) |
| squares), circles and |  |  |  |  |
| triangles] | identify and describe the |  |  | illustrate and name parts |
| \* 3-D shapes [e.g. | properties of 3-D shapes, |  |  | of circles, including radius, |
| cuboids (including | including the number of |  |  | diameter and |
| cubes), pyramids and | edges, vertices and faces |  |  | circumference and know |
| spheres]. |  |  |  | that the diameter is twice |
|  | identify 2-D shapes on the |  |  | the radius |
|  | surface of 3-D shapes, [for |  |  |  |
|  | example, a circle on a |  |  |  |
|  | cylinder and a triangle on |  |  |  |
|  | a pyramid] |  |  |  |
| **DRAWING AND CONSTRUCTING** | | | | | |
|  |  | draw 2-D shapes and | complete a simple | draw given angles, and measure them in degrees  o  ( ) | draw 2-D shapes using |
| make 3-D shapes using | symmetric figure with | given dimensions and |
| modelling materials; | respect to a specific line of | angles |
| recognise 3-D shapes in  different orientations and describe them | symmetry |  |
| recognise, describe and build simple 3-D shapes,  including making nets |
|  |  | (appears also in Identifying |
|  |  | Shapes and Their Properties) |

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| **COMPARING AND CLASSIFYING** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  | compare and sort common 2-D and 3-D shapes and everyday objects |  | compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes | use the properties of rectangles to deduce related facts and find missing lengths and angles | compare and classify geometric shapes based on their properties and sizes and find unknown angles in any triangles, quadrilaterals, and regular polygons |
| distinguish between regular and irregular polygons based on reasoning about equal sides and angles |
| **ANGLES** | | | | | |
|  |  | recognise angles as a property of shape or a description of a turn |  | know angles are measured in degrees: estimate and compare  acute, obtuse and reflex angles |  |
|  |  | 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 | identify acute and obtuse angles and compare and order angles up to two right angles by size | identify:   * angles at a point and one   o  whole turn (total 360 )   * angles at a point on a straight   o  line and ½ a turn (total 180 )  o   * other multiples of 90 | recognise angles where they meet at a point, are on a straight line, or are vertically opposite, and find missing angles |
|  |  | identify horizontal and vertical lines and pairs of perpendicular  and parallel lines |  |  |  |

**Geometry: Position and Direction**

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| **POSITION, DIRECTION AND MOVEMENT** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
| describe position, direction and movement, including half, quarter and three-quarter turns. | use mathematical vocabulary to describe position, direction and movement including movement in a straight line and distinguishing between rotation as a turn and in terms of right angles for quarter, half and three-quarter turns (clockwise and  anti-clockwise) |  | describe positions on a  2-D grid as coordinates in the first quadrant | 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 | describe positions on the full coordinate grid (all four quadrants) |
| describe movements between positions as translations of a given unit to the left/right and up/down | draw and translate simple shapes on the coordinate plane, and reflect them in the axes. |
|  |  |  | plot specified points and draw sides to complete a  given polygon |  |  |
| **PATTERN** | | | | | |
|  | order and arrange combinations of mathematical objects in  patterns and sequences |  |  |  |  |

**Geometry: Position and Direction**

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| **INTERPRETING, CONSTRUCTING AND PRESENTING DATA** | | | | | |
| Year 1 | Year 2 | Year 3 | Year 4 | Year 5 | Year 6 |
|  | interpret and construct simple pictograms, tally charts, block diagrams and simple tables | interpret and present data using bar charts, pictograms and tables | interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and  time graphs | complete, read and interpret information in tables, including timetables | interpret and construct pie charts and line graphs and use these to solve problems |
|  | ask and answer simple questions by counting the number of objects in each category and sorting the  categories by quantity |  |  |  |  |
|  | ask and answer questions about totalling and comparing categorical  data |  |  |  |  |
| **SOLVING PROBLEMS** | | | | | |
|  |  | solve one-step and two- step questions [e.g. ‘How many more?’ and ‘How many fewer?’] using information presented in scaled bar charts and  pictograms and tables. | solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs. | solve comparison, sum and difference problems using information presented in a line graph | calculate and interpret the mean as an average |