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| **Year 4: addition and subtraction** | | | | |
| End of year expectations  Pupils should be taught to:  add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate  estimate and use inverse operations to check answers to a calculation  solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why. | | | | Develop links with:   * Multiplication and division * Measurement * Statistics * Geometry |
| End of year 3 prior knowledge addition and subtraction:  Pupils should be taught to:   * 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 with up to three digits, using formal written methods of columnar addition and subtraction * estimate the answer to a calculation and use inverse operations to check answers * solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction | | End of year 3 Number and place value  Pupils should be taught to:   * count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number * recognise the place value of each digit in a three-digit number (hundreds, tens, ones) * compare and order numbers up to 1000 * identify, represent and estimate numbers using different representations * read and write numbers up to 1000 in numerals and in words * solve number problems and practical problems involving these ideas | | |
| **Autumn** | **Spring** | | **Summer** | |
|  |  | | * add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate * estimate and use inverse operations to check answers to a calculation * solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why   Continue to discuss whether mental strategies would be more appropriate than formal methods for particular calculations | |

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| **Year 4: multiplication and division** | | | | |
| End of year expectations  Pupils should be taught to:  recall multiplication and division facts for multiplication tables up to 12 × 12  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  recognise and use factor pairs and commutativity in mental calculations  multiply two-digit and three-digit numbers by a one-digit number using formal written layout  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. | | | | Develop links with   * Addition and subtraction * Measurement * Fractions |
| End of year 3 knowledge: multiplication and division  Pupils should be taught to:   * recall and use multiplication and division facts for the 3, 4 and 8 multiplication tables * 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 * solve problems, including missing number problems, involving multiplication and division, including integer scaling problems and correspondence problems in which n objects are connected to m objects | | End of year 3 Number and place value  Pupils should be taught to:   * count from 0 in multiples of 4, 8, 50 and 100; find 10 or 100 more or less than a given number * recognise the place value of each digit in a three-digit number (hundreds, tens, ones) * compare and order numbers up to 1000 * identify, represent and estimate numbers using different representations * read and write numbers up to 1000 in numerals and in words * solve number problems and practical problems involving these ideas | | |
| Autumn | Spring | | Summer | |
|  |  | | * recall multiplication and division facts for multiplication tables up to 12 × 12 * 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 * recognise and use factor pairs and commutativity in mental calculations * multiply two-digit and three-digit numbers by a one-digit number using formal written layout * 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 | |

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| **Year 4 Fractions** | | | |
| End of year expectations in year 4  Pupils should be taught to:   * recognise and show, using diagrams, families of common equivalent fractions * count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten. * 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 * add and subtract fractions with the same denominator # * recognise and write decimal equivalents of any number of tenths or hundredths * recognise and write decimal equivalents to 1/4; 1/2; ¾ * 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 * round decimals with one decimal place to the nearest whole number * compare numbers with the same number of decimal places up to two decimal places * solve simple measure and money problems involving fractions and decimals to two decimal places. | | | Develop links with:   * Number and place value * Multiplication and division * Measurement * Geometry |
| End of year 3 knowledge: fractions  Pupils should be taught to:   * 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 * recognise, find and write fractions of a discrete set of objects: unit fractions and non-unit fractions with small denominators * recognise and use fractions as numbers: unit fractions and non-unit fractions with small denominators * recognise and show, using diagrams, equivalent fractions with small denominators * add and subtract fractions with the same denominator within one whole (e.g. 5/7 + 1/7 = 6/7) * compare and order unit fractions, and fractions with the same denominators * solve problems that involve all of the above. | | | |
| Autumn | Spring | Summer | |
|  |  | * recognise and show, using diagrams, families of common equivalent fractions * count up and down in hundredths; recognise that hundredths arise when dividing an object by a hundred and dividing tenths by ten. * 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 * recognise and write decimal equivalents of any number of tenths or hundredths * round decimals with one decimal place to the nearest whole number * compare numbers with the same number of decimal places up to two decimal places * solve simple measure and money problems involving fractions and decimals to two decimal places. | |

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| **Year 4 Measurement** | | | |
| End of year expectations in year 4  Pupils should be taught to:  Convert between different units of measure (e.g. kilometre to metre; hour to minute)  measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres  find the area of rectilinear shapes by counting squares  estimate, compare and calculate different measures, including money in pounds and pence  read, write and convert time between analogue and digital 12 and 24-hour clocks  solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. | | | Develop links with:   * Multiplication and division * Fractions * Geometry |
| End of year 3 knowledge  Pupils should be taught to:  measure, compare, add and subtract: lengths (m/cm/mm); mass (kg/g); volume/capacity (l/ml)  measure the perimeter of simple 2-D shapes  add and subtract amounts of money to give change, using both £ and p in practical contexts  tell and write the time from an analogue clock, including using Roman numerals from I to XII, and 12-hour and 24-hour clocks  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  know the number of seconds in a minute and the number of days in each month, year and leap year  compare durations of events, for example to calculate the time taken by particular events or tasks. | | | |
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|  |  | * Convert between different units of measure (e.g. kilometre to metre; hour to minute)   measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres  find the area of rectilinear shapes by counting squares  estimate, compare and calculate different measures, including money in pounds and pence  read, write and convert time between analogue and digital 12 and 24-hour clocks  solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days. | |

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| **Year 4 Geometry** | | | |
| End of year expectations in year 4  Geometry: properties of shapes  Pupils should be taught to:  compare and classify geometric shapes, including quadrilaterals and triangles**,** based on their properties and sizes  identify acute and obtuse angles and compare and order angles up to two right angles by size  identify lines of symmetry in 2-D shapes presented in different orientations  complete a simple symmetric figure with respect to a specific line of symmetry.  Geometry: position and direction  Pupils should be taught to:  describe positions on a 2-D grid as coordinates in the first quadrant  describe movements between positions as translations of a given unit to the left/right and up/down  plot specified points and draw sides to complete a given polygon. | | | Develop links with:   * Number and place value * Multiplication and division * Fractions * Geometry |
| End of year 3 knowledge: Geometry properties of shapes  Pupils should be taught to:  draw 2-D shapes and make 3-D shapes using modelling materials; recognise 3-D shapes in different orientations and describe them  recognise angles as a property of shape or a description of a turn  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 horizontal and vertical lines and pairs of perpendicular and parallel lines. | | | |
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|  |  | * compare and classify geometric shapes, including quadrilaterals and triangles**,** based on their properties and sizes * identify acute and obtuse angles and compare and order angles up to two right angles by size * identify lines of symmetry in 2-D shapes presented in different orientations * complete a simple symmetric figure with respect to a specific line of symmetry. * describe positions on a 2-D grid as coordinates in the first quadrant * describe movements between positions as translations of a given unit to the left/right and up/down * plot specified points and draw sides to complete a given polygon. | |