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| **Year 3: addition and subtraction** |
| End of year expectations 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
 | Develop links with:* Multiplication and division
* Measurement
* Statistics
* Geometry
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| End of year 2 addition and subtractionPupils should be taught to: * 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
* recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100
* 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
* show that addition of two numbers can be done in any order (commutative) and subtraction of one number from another cannot
* recognise and use the inverse relationship between addition and subtraction and use this to check calculations and missing number problems.
 | End of year 2 Number and place valuePupils should be taught to: * count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward
* recognise the place value of each digit in a two-digit number (tens, ones)
* identify, represent and estimate numbers using different representations, including the number line
* compare and order numbers from 0 up to 100; use <, > and = signs
* read and write numbers to at least 100 in numerals and in words
* use place value and number facts to solve problems.
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| **Autumn** | **Spring** | **Summer** |
|  |  | 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 |

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| **Year 3: multiplication and division** |
| End of year expectationsPupils 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.
 | Develop links with* Addition and subtraction
* Measurement
* Fractions
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| End of year 2 knowledge: multiplication and divisionPupils should be taught to: * recall and use multiplication and division facts for the 2, 5 and 10 multiplication tables, including recognising odd and even numbers
* calculate mathematical statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs
* show that multiplication of two numbers can be done in any order (commutative) and division of one number by another cannot
* solve problems involving multiplication and division, using materials, arrays, repeated addition, mental methods, and multiplication and division facts, including problems in contexts
 | End of year 2 Number and place valuePupils should be taught to: * count in steps of 2, 3, and 5 from 0, and in tens from any number, forward or backward
* recognise the place value of each digit in a two-digit number (tens, ones)
* identify, represent and estimate numbers using different representations, including the number line
* compare and order numbers from 0 up to 100; use <, > and = signs
* read and write numbers to at least 100 in numerals and in words
* use place value and number facts to solve problems.
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| Autumn | Spring | Summer |
|  |  | 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.
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| **Year 3 Fractions** |
| End of year expectations in year 3Pupils 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.
 | Develop links with:* Number and place value
* Multiplication and division
* Measurement
* Geometry
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| End of year 2 knowledge: fractionsPupils should be taught to: * recognise, find, name and write fractions 1/3, 1/4, 2/4 and 3/4 of a length, shape, set of objects or quantity
* write simple fractions e.g. 1/2 of 6 = 3 and recognise the equivalence of 2/4 and 1/2.
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| Autumn | Spring | Summer |
|  | *
 | * 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.
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| **Year 3 Measurement** |
| End of year expectations in year 3Pupils 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.
 | Develop links with:* Multiplication and division
* Fractions
* Geometry
 |
| End of year 2 knowledge   |
| Autumn | Spring | Summer |
|  |  |  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
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* compare durations of events, for example to calculate the time taken by particular events or tasks.
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| **Year 3 Geometry** |
| End of year expectations in year 3Geometry: properties of shapesPupils 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.

Geometry: position and direction (build on year 2 expectations)  | Develop links with:* Number and place value
* Multiplication and division
* Fractions
* Geometry
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| End of year 2 knowledge: Geometry properties of shapesPupils should be taught to: * identify and describe the properties of 2-D shapes, including the number of sides and symmetry in a vertical line
* identify and describe the properties of 3-D shapes, including the number of edges, vertices and faces
* identify 2-D shapes on the surface of 3-D shapes, for example a circle on a cylinder and a triangle on a pyramid
* compare and sort common 2-D and 3-D shapes and everyday objects.

 End of year 2 knowledge: Geometry position and directionPupils should be taught to: * order and arrange combinations of mathematical objects in patterns
* 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).
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| Autumn | Spring | Summer |
|  |  | 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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