Addition

| Written Methods | Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs | Add and subtract two two-digit numbers using concrete objects, pictorial representations progressing to formal written methods $\begin{array}{r} 4 \ 6 \\ + \frac{2 \ 7}{7 \ 3} \\ 1 \end{array}$ | Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction 4 2 3 $+ \frac{88}{511}$ | Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition where appropriate $\begin{array}{r} 2458\\ +\underline{596}\\ \underline{3054}\\ 111\end{array}$ | Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) 2 3 4 5 4 | Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why |
|---|---|---|--|--|--|---|
| Developing conceptual understanding | Number bonds (Ten frame) Numicon Use bonds of 10 to calculate bonds of 20 Count all Count all Count on 8 Count on 1 Count on, on number track, in 1s 7 8 9 10 11 12 13 14 15 16 | Number track / Number line – jumps of 1 then efficient jumps using number bonds 18 + 5 = 23 46 + 27 = 73 Count in tens then bridge. 46 + 27 = 73 Count in tens then bridge. 25 + 29 by + 30 then -1 (Round and adjust) Partition and recombine 46 + 27 = 60 + 13 = 73 105 15 105 100 | Number line: 264 + 158 efficient jumps $ \begin{array}{c} \underbrace{150}_{264} & \underbrace{150}_{364} & \underbrace{150}_{42} & \underbrace{150}_{4}$ | | $+\frac{596}{24050}$ | |
| With jottings or in your head | Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \Box - 9$ | 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 | Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why | Add and subtract numbers mentally with increasingly large numbers | Perform mental calculations, including with mixed operations and large numbers |
| Just know it! | Represent & use number bonds and related subtraction facts within 20 Add and subtract one-digit and two- digit numbers to 20, including zero | Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 | | | | |
| Stage | 1 | 2 | 3 | 4 | 5 | 6 |
| | 1 more | 10 more Number bonds: 20, 12, 13 | Add multiples of 10, 100 | Add multiples of 10s , 100s, 1000s | Add multiples of 10s, 100s, 1000s, tenths, | Add multiples of 10s , 100s, 1000s, tenths, hundredths |
| | Number bonds: 5, 6 | Number bonds: 14,15 Add 1 digit to 2 digit by bridging. | Add single digit bridging through boundaries | Fluency of 2 digit + 2 digit | Fluency of 2 digit + 2 digit including with decimals | Fluency of 2 digit + 2 digit including with decimals |
| | Largest number first. Number bonds: 7, 8 | Partition second number, add tens then ones | Partition second number to add Pairs of 100 | Partition second number to add Decimal pairs of 10 and 1 | Partition second number to add | Partition second number to add |
| Foundations | Add 10. Number bonds: 9, 10 | Add 10 and multiples. Number bonds: 16 and 17 | Use near doubles to add | Use near doubles to add | Use number facts, bridging and place value | Use number facts, bridging and place value |
| | Ten plus ones. Doubles up to 10 | Doubles up to 20 and multiples of 5 Add near multiples of 10. | Add near multiples of 10 and 100 by rounding and adjusting | Adjust both numbers before adding Add near multiples | Adjust numbers to add | Adjust numbers to add |
| | Use number bonds of 10 to derive bonds of 11 | Number bonds: 18, 19 Partition and recombine | Partition and recombine | Partition and recombine | Partition and recombine | Partition and recombine |

Subtraction

| Subtraction | | | | | | | |
|---|--|--|---|---|---|---|--|
| | Read, write and interpret mathematical statements involving addition (+), subtraction (–) and equals (=) signs | Add and subtract two two-digit numbers using concrete objects, pictorial representations progressing to formal written methods | Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction 231 $\underline{3344}$ $-\underline{187}$ $\underline{157}$ | Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition where appropriate 2^{1}_{31} 2^{3}_{34} - 187 | Add and subtract whole numbers with more than 4 digits, including using formal written methods (columnar addition and subtraction) $\frac{2^{1} 3 1}{5 2 3 4 4}$ - 1187 | Solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why | |
| Developing conceptual understanding | Number bonds (Ten frame) Difference between 7 and 10 6 less than 10 is 4 Count out, then count how many are left. 7-4 = 3 Count back on a number track, then number line. 15-6=9 T = 0 T = 0 | Number track / Number line – jumps of 1 then efficient jumps using number bonds 23 - 5 = 18 Using a number line, $73 - 46 = 26$ 1 + 2 + 26 + 26 Using a number line, $73 - 46 = 26$ 1 + 2 + 26 + 26 + 73 Difference between $73 - 58$ by counting up, $58 + _ = 73$ Taking away and exchanging, $73 - 46$ 1 + 26 + 26 + 26 + 73 Taking away and exchanging, $73 - 46$ 1 + 26 + 26 + 26 + 26 + 26 + 26 + 26 + 2 | Taking away and exchanging, 344 – 187 Place value counters "Where's the one hundred and eighty and seven? Exchange to create three hundred and furty and fourteen. Now take away the 'seven' Exchange to create two hundred, thriteen tens and seven Now take away the 'eighty' Now take away the 'seven' Now take away the 'seven' | 2157 | 51157 | | |
| With jottings | Solve one-step problems that involve addition and subtraction, using concrete objects and pictorial representations, and missing number problems such as $7 = \Box - 9$ | 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 * two two-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 | Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why | Add and subtract numbers mentally with increasingly large numbers | Perform mental calculations, including with mixed operations and large numbers | |
| Just know it! | Represent and use number bonds and related subtraction facts within 20 Add and subtract one-digit and two- digit numbers to 20, including zero | adding three one-digit numbers Recall and use addition and subtraction facts to 20 fluently, and derive and use related facts up to 100 | | | | | |
| | | | | 4 | 5 | 6 | |
| Stage | 1 | 2 | 3 | | - | | |
| Stage | 1 1 less | 2 10 less Number bonds, subtraction: 20, 12, 13 | 3 Subtract multiples of 10 and 100 | Subtract multiples of 10s , 100s, 1000s | Subtract multiples of 10s , 100s, 1000s, tenths, | Subtract multiples of 10s , 100s, 1000s, tenths, hundredths | |
| Stage | - | 10 less Number bonds, subtraction: 20, 12, 13 Number bonds, subtraction: 14, 15 | Subtract multiples of 10 and 100 Subtract single digit by bridging through | Subtract multiples of 10s , 100s, | | Subtract multiples of 10s , 100s, 1000s, | |
| Stage | 1 less Number bonds, subtraction: 5, 6 Count back Number bonds, subtraction: 7, 8 | 10 less Number bonds, subtraction: 20, 12, 13 Number bonds, subtraction: 14, 15 Subtract 1 digit from 2 digit by bridging Partition second number, count back in 10s then 1s | Subtract multiples of 10 and 100 | Subtract multiples of 10s , 100s, 1000s | tenths, Fluency of 2 digit - 2 digit including with | Subtract multiples of 10s, 100s, 100s, tenths, hundredths Fluency of 2 digit - 2 digit including with decimals Partition second number to subtract | |
| Stage | 1 less Number bonds, subtraction: 5, 6 Count back | 10 less Number bonds, subtraction: 20, 12, 13 Number bonds, subtraction: 14, 15 Subtract 1 digit from 2 digit by bridging Partition second number, count back in | Subtract multiples of 10 and 100 Subtract single digit by bridging through boundaries | Subtract multiples of 10s , 100s, 1000s Fluency of 2 digit subtract 2 digit Partition second number to subtract | tenths, Fluency of 2 digit - 2 digit including with decimals | Subtract multiples of 10s, 100s, 100s, tenths, hundredths Fluency of 2 digit - 2 digit including with decimals | |
| - | 1 less Number bonds, subtraction: 5, 6 Count back Number bonds, subtraction: 7, 8 Subtract 10. | 10 less Number bonds, subtraction: 20, 12, 13 Number bonds, subtraction: 14, 15 Subtract 1 digit from 2 digit by bridging Partition second number, count back in 10s then 1s Subtract 10 and multiples of 10 | Subtract multiples of 10 and 100 Subtract single digit by bridging through boundaries Partition second number to subtract | Subtract multiples of 10s , 100s, 1000s Fluency of 2 digit subtract 2 digit Partition second number to subtract Decimal subtraction from 10 or 1 | tenths, Fluency of 2 digit - 2 digit including with decimals Partition second number to subtract | Subtract multiples of 10s, 100s, 100s, tenths, hundredths Fluency of 2 digit - 2 digit including with decimals Partition second number to subtract Use number facts bridging and place | |

Multiplication

| | | | Multiplice | | 1 | |
|---|---|--|--|--|--|--|
| Written Methods | | 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 ÷ using the x tables they know progressing to formal written methods. | Multiply two-digit and three-digit numbers by a one-digit number243 x 6 2058 layout | Multiply numbers up to 4243digits by a one- or two-digitx 36number using a formal1458written method, including7290long multiplication for two-8748digit numbers1 | Multiply multi-digit numbers up to 4 digits by a two-digit whole number using the formal written method of long multiplication 5172 <u>x 38</u> |
| Developing conceptual understanding | 2 frogs on each lily pad. 2 frogs on each lily | 5 frogs on each lily pad 5 x 3 = 15 | If I know 10 x 8 = 80 then So $13 \times 4 = 10 \times 4 + 3 \times 4$ 40 12 Build tables on counting stick | 43 x 6 by partitioning x 40 3 6 240 18 43 x 6 240 18 43 x 6 43 x 6 40 x 6 = 240 3 x 6 = 18 43 x 6 = 258 If I know 4 x 6 = 24 the 40 x 60 is ten times bigger. 13 x 16 by partitioning 10 3 10 6 6 00 + 30 + 60 + 18 = 208 Build tables on counting stick | Grid method linked to formal written method $\frac{x 200 40 3}{30 6000 1200 90} = 7290$ $= 1458 + \frac{1458}{8748} + $ | $\begin{array}{r} 41376\\ + \underline{155160}\\ \underline{196536}\\ 1\\ \hline \\ 1\\ 1\\ 1\\ 5172\\ \times \underline{38}\\ 41376\\ + \underline{155160}\\ \underline{196536}\\ 1\\ 1\\ 5172\\ \times \underline{38}\\ \underline{41376}\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\ 1\\$ |
| With jottings or in your head | 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 | 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 | 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 methods | 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 and divide numbers mentally drawing upon known facts Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000 Identify multiples and factors, including finding all factor pairs of a number, and common factors of two numbers establish whether a number up to 100 is prime | Perform mental calculations, including with mixed operations and large numbers |
| Just know it! | Count in multiples of twos, fives and tens | Recall and use x and ÷ facts for the 2, 5 and 10 x tables, including recognising odd and even numbers. | Recall and use x and ÷ facts for the 3, 4 and 8 times tables. | Recall x and ÷ facts for x tables up to 12 x 12. | Recall prime numbers up to 19 know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers Recognise and use square numbers and cube numbers, and the notation for squared (²) and cubed (³) | |
| Stage | 1 | 2 | 3 | 4 | 5 | 6 |
| | Count in 2s Count in 10s | 2 x table 10 x table | Review 2x, 5x and 10x 4x table | 4x, 8x tables 10 times bigger 3x, 6x and 12x tables | 4x, 8x tables 100, 1000 times bigger 3x, 6x and 12x tables 10, 100, 1000 times smaller | Multiplication facts up to 12 x 12 Partition to multiply mentally |
| Foundations | Doubles up to 10 | Doubles up to 20 and multiples of 5 | Double two digit numbers | Double larger numbers and decimals | Double larger numbers and decimals | Double larger numbers and decimals |
| | Count in 5s | 5 x table | 8 x table | 3x, 9x tables | 3x, 9x tables | Multiplication facts up to 12 x 12 |
| | Double multiples of 10 | Count in 3s | 3 x table | 11x, 7 x tables | 11x , 7 x tables Partition to multiply mentally | Partition to multiply mentally |
| | Count in 2s, 5s and 10s | 2 x, 5 x and 10 x tables | 6 x table or review others | 6x, 12 x tables | 6x, 12 x tables | Double larger numbers and decimals |

Division

| Write Geodes methanization in method in using it or interface in method in the met | | | | | | | |
|--|---------------|--|--|---|--|--|---|
| getter ginue d? (1) 100° 10°. (1) 100° 10° | | | statements for multiplication and division within the multiplication tables and write them using the multiplication (×), division (÷) and equals (=) signs | statements for ÷ using the x tables they know progressing to formal written methods. | Grouping using partitioning | 4 digits by a one-digit number using the formal written $194 \div 6$ 2 method of short division and interpret remainders $194 \div 6$ 19^{12} division and interpret $192 \div 6$ appropriately for the $= 32$ context | a two-digit whole number using the formal written method of short division where appropriate for the context $564 \div 13$ $Using = \frac{7}{10} \frac{73}{2} \frac{73}{2} \frac{73}{10} \frac{7}{10} \frac{73}{2} \frac{73}{2} \frac{73}{10} \frac{7}{10} \frac{7}{2} \frac{73}{2} \frac{73}{2$ |
| With jottings with jottings unitiplication and division, by calculating person and division of one number by another cannot.can be done in any order (commutter) and division of one number by another cannot.statements for multiplication and division the multiplication and division by sing multiplication and division, using materials, strays. including for two-digt numbers, using mental methodsto multiply and divise mentally, including reception tables that they | conceptual | grabbing groups of 2 | Use language of division linked to tables | 43 ÷ 3 HĨ know 10 x 3 $43 \div 3$ $30 \div 3$ $43 \div 3$ $30 \div 3$ Use language of division linked to tables | 196 ÷ 6 lf I know 3 x 6 then 30 x 6 196 ÷ 6 lf I know 3 x 6 then 30 x 6 Chunking up' on a number line 196 ÷ 6 = 32 r 4 30^{+6} 100^{-16} 100^{-16} 100^{-16} Use language of division linked to tables. | support written method toos too too too Exchange 100 for ten 10s 19 tens into groups so that is 30 x 6, exchange remaining 10 for ten 1s too too too too 3 groups so that is 30 x 6, exchange remaining 10 for ten 1s | $ \begin{array}{r} 1" \\ \underline{4 \ 3 \ 3 \ 8} \\ \underline{13 \ 5 \ 6 \ 4 \ 5 \ 0^{11}0} \\ \begin{array}{r} 13 \ 5 \ 6 \ 4 \ 5 \ 0^{11}0 \\ \end{array} $ Divide numbers up to 4 digits by a two-digit whole number using the formal written method of long division, and interpret remainders, fractions, or by rounding, as appropriate for the context $\begin{array}{r} \underline{4 \ 3 \ 7 \ 5} \\ \underline{13 \ 5 \ 6 \ 4} \\ \underline{5 \ 2 \ 0} \\ \underline{4 \ 3 \ 7 \ 5} \\ \underline{13 \ 5 \ 6 \ 4} \\ \underline{5 \ 2 \ 0} \\ \underline{4 \ 4} \\ - \ \underline{3 \ 9} \\ 5 \\ 5 \\ 5 \\ 5 \\ 0 \\ \end{array} $ $\begin{array}{r} 13 \ 5 \ 6 \ 4 \\ \underline{5 \ 2 \ 0} \\ \underline{13 \ x \ 0} \\ \underline{5 \ 2 \ 0} \\ \underline{13 \ x \ 0} \\ \underline{5 \ 5 \ 0} \\ \underline{13 \ x \ 0.8} \\ \underline{1.04} \\ 0.06 \end{array} $ |
| Just know it!Count in multiples of twos, fives and tensRecall and use x and + facts for the 2, 5 and 8 times tables.Recall and use x and + facts for the 3, 4 and 8 times tables.Recall x and + facts for x tables up to 12 x 12.know and use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.Stage123456Count back in 2sDivision facts (2 x table)Review division facts (2x, 5x, 10x table)Division facts (4x, 8x tables) 10 times smallerDivision facts (4x, 8x tables) 100, 1000 times smallerDivision facts (4x, 8x tables) 100, 1000 times smallerFoundationsDivision facts (10 x table)Division facts (10 x table)Division facts (4x table)Division facts (3x, 6x, 12x tables) 10 times smallerDivision facts (3x, 6x, 12x tables)Partition to divide mentally Partition to divide mentallyFoundationsHalve multiples of 10Count back in 3sDivision facts (2x, 5x, 10x table)Division facts (11x, 7x tables)Division facts (11x, 7x tables)Division facts (11x, 7x tables)Partition to divide mentally Partition to divide mentallyFoundationsHalve multiples of 10Count back in 3sDivision facts (2x, 5x, 10x to 10 tivision facts (3x table)Division facts (11x, 7x tables)Review division facts (11x, 7x tables)Review division facts (0x, 12x tables)Partition to divide mentally Partition to divide mentallyFoundationsHalve multiples of 10Count back in 3sDivision facts (6x table) or reviewDivision facts (11x, 7x tables)Review division facts (6x, 12x tables)Partition decimals to divid | or in your | multiplication and division, by calculating the answer using concrete objects, pictorial representations and arrays with | 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, | statements for multiplication and division using the multiplication tables that they know, including for two-digit numbers times one-digit numbers, using mental | to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers Recognise and use factor pairs and | drawing upon known facts Multiply and divide whole numbers and those involving decimals by 10, 100 and | |
| Foundations Count back in 2s Division facts (2 x table) Review division facts (2x, 5x, 10x table) Division facts (4x, 8x tables) 100, 1000 times smaller Division facts (4x, 8x tables) 100, 1000 times smaller Keview division facts (10 x table) Division facts (2x, 5x, 10x table) Division facts (4x, 8x tables) 100, 1000 times smaller Division facts (4x, 8x tables) 100, 1000 times smaller Division facts (10, 10x table) Partition to divide mentally Halves up to 10 Halves up to 20 Halve two digit numbers Halve larger numbers and decimals Division facts (1x, 7x tables) Division facts (1u to 12 x 12) Foundations Halve multiples of 10 Count back in 3s Division facts (3x, 6x, 12x tables) Division facts (1x, 7x tables) Partition to divide mentally How many 2s2 5s2 10s2 Review division facts (2x, 5x, 10x Division facts (6x table) or review Division facts (6x, 12x tables) Review division facts (6x, 12x tables) Halve larger numbers and decimals | Just know it! | Count in multiples of twos, fives and tens | and 10 x tables, including recognising odd | | | know and use the vocabulary of prime numbers, prime factors and composite | |
| Foundations Count back in 2s Division facts (2x table) table) 10 times smaller 100, 1000 times smaller Division facts (up to 12 x 12) Image: Foundations Count back in 10s Division facts (10 x table) Division facts (4 x table) Division facts (3x, 6 x, 12x tables) Partition to divide mentally Partition to divide mentally Halves up to 10 Halves up to 20 Halve two digit numbers Halve larger numbers and decimals Halve larger numbers and decimals Halve larger numbers and decimals Division facts (3x, 9 x tables) Division facts (10 x table) Division facts (2x 12) Halve multiples of 10 Count back in 3s Division facts (3 x table) Division facts (11x, 7x tables) Review division facts (11x, 7x tables) Partition to divide mentally How many 2s2 5s2 10s2 Review division facts (2x, 5x, 10x Division facts (6 x table) or review Division facts (6x 12x tables) Review division facts (6x, 12x tables) Halve larger numbers and decimals | Stage | 1 | 2 | 3 | 4 | 5 | 6 |
| Foundations Count back in 10s Division facts (10 x table) Division facts (4 x table) Division facts (3x, 5 x, 12x tables) Partition to divide mentally Partition to divide mentally Halves up to 10 Halves up to 20 Halve two digit numbers Halve larger numbers and decimals Division facts (3x, 9x tables) Division facts (10 x 12 x 12) Foundations Halve multiples of 10 Count back in 3s Division facts (3 x table) Division facts (11x, 7x tables) Review division facts (11x, 7x tables) Partition to divide mentally How many 2s2 5s2 10s2 Review division facts (2x, 5x, 10x Division facts (6x table) or review Division facts (6x 12x tables) Review division facts (6x, 12x tables) Halve larger numbers and decimals | | Count back in 2s | Division facts (2 x table) | | | | Division facts (up to 12 x 12) |
| Foundations Count back in 5s Division facts (5 x table) Division facts (8 x table) Division facts (3x, 9x tables) Division facts (3x, 9x tables) Division facts (up to 12 x 12) Halve multiples of 10 Count back in 3s Division facts (3 x table) Division facts (11x, 7x tables) Review division facts (11x, 7x tables) Partition to divide mentally How many 2s2 5s2 10s2 Review division facts (2x, 5x, 10x Division facts (6x table) or review Division facts (6x, 12x tables) Review division facts (6x, 12x tables) Halve division facts (6x, 12x tables) | | Count back in 10s | Division facts (10 x table) | Division facts (4 x table) | Division facts (3x, 6 x, 12x tables) | | Partition to divide mentally |
| Foundations Envision facts (2x, 5x, 10x) Division facts (3x table) Division facts (3x table) Division facts (11x, 7x tables) Review division facts (11x, 7x tables) Partition to divide mentally How many 2s2 5s2 10s2 Review division facts (2x, 5x, 10x) Division facts (6x table) or review Division facts (6x 12x tables) Review division facts (6x, 12x tables) Halve arger numbers and decimals | | Halves up to 10 | Halves up to 20 | Halve two digit numbers | Halve larger numbers and decimals | | Halve larger numbers and decimals |
| Haive multiples of 10 Count back in 3s Division facts (3 x table) Division facts (11x, 7x tables) Partition decimals to divide mentally Partition to dital partit | | Count back in 5s | Division facts (5 x table) | Division facts (8 x table) | Division facts (3x, 9x tables) | 100, 1000 times smaller | Division facts (up to 12 x 12) |
| How many 2x2 5x2 10x2 | Foundations | Halve multiples of 10 | | | Division facts (11x, 7x tables) | Partition decimals to divide mentally | Partition to divide mentally |
| | | How many 2s? 5s? 10s? | | | Division facts (6x, 12x tables) | | Halve larger numbers and decimals |