| EYFS | | | |
|---|---|--|--|
| Addition | Subtraction | Multiplication | Division |
| Counting on from a number to find the total | Subtraction as taking away | Laying the foundations by maximising opportunities when counting | Laying the foundations for grouping and sharing when counting |
| I have 5 pennies in my tin. I put in one, two, three pence more. How many pennies are in the tin now? | my my | Number rhymes such as 2,4,6,8 Ten fat sausages | Number rhymes such as 2,4,6,8 Ten fat sausages |
| Use moveable objects when finding totals. Touch and align each object as it is counted. | | Mittle Off | |
| | There were 6 people on the bus. Four people got off. How many are left? | Counting in pairs e.g. pairs of socks | Counting in pairs |
| Count first group, start count from first group's total when counting second group | | pairs of animals eggs in a box | e.g. pairs of socks pairs of animals eggs in a box |
| 3 4 | 4-1 =? Subtraction as finding the difference | Hop along in twos on a large number track | Hop along in twos on a large number track |
| | | | One for you, one for me |
| | The difference in stripes is? | | Two for you, two for me. Count in ones but every ther number is a whisper |

| | Year 1 | | |
|---|---|--|---|
| Addition | Subtraction | Multiplication | Division |
| Addition $+ = signs and missing numbers3 + 4 = 0= 3 + 43 + 0 = 77 = 0 + 43 + 0 = 77 = 0 + 4- + 4 = 77 = 3 + 0+ \nabla = 77 = 0 + \nablaPromoting covering up of operations and numbers.Number lines (numbered)7 + 47 + 4O constructing own prepared lineso constructing own lines(Teacher model number lines with missing numbers)(Teachers model jottings appropriate for larger numbers)$ | SubtractionPictures / marksSam spent 4p. What was his change from10p? \checkmark \checkmark \checkmark \checkmark \bullet <td>Pictures and symbols There are 3 sweets in one bag. How many sweets are there in 5 bags? (Recording on a number line modelled by the teacher when solving problems) Use of bead strings to model groups of.</td> <td>Division Pictures / marks 12 children get into teams of 4 to play a game. How many teams are there? 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2</td> | Pictures and symbols There are 3 sweets in one bag. How many sweets are there in 5 bags? (Recording on a number line modelled by the teacher when solving problems) Use of bead strings to model groups of. | Division Pictures / marks 12 children get into teams of 4 to play a game. How many teams are there? 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 |
| | Recording by - drawing jumps on prepared lines - constructing own lines (Teachers model jottings appropriate for larger numbers) | | |

| Year 2 | | | |
|--|--|---|---|
| Addition | Subtraction | Multiplication | Division |
| + = signs and missing numbers | - = signs and missing numbers | x = signs and missing numbers | ÷ = signs and missing numbers |
| Continue using a range of equations as in Year 1 but with appropriate, larger numbers. Extend to | Continue using a range of equations as in Year 1 but with appropriate numbers. Extend to $14 + 5 = 20 - \Box$ | $7 \times 2 = \Box$ $\Box = 2 \times 7$ $7 \times \Box = 14$ $14 = \Box \times 7$ $\Box \times 2 = 14$ $14 = 2 \times \Box$ | $6 \div 2 = \Box$ $\Box = 6 \div 2$ $6 \div \Box = 3$ $3 = 6 \div \Box$ |
| $14 + 5 = 10 + \square$ and adding three numbers $32 + \square + \square = 100$ $35 = 1 + \square + 5$ | Find a small difference by counting up 42 - 39 = 3 | $\Box x \nabla = 14 \qquad 14 = \Box x \nabla$ <u>Arrays and repeated addition</u> | $\Box \div 2 = 3$ $3 = \Box \div 2$ $\Box \div \nabla = 3$ $3 = \Box \div \nabla$ |
| Partition into tens and ones and recombine 12 + 23 = 10 + 2 + 20 + 3 | +1 +2 | • • • • 4 x 2 or 4 + 4 • • • • | Understand division as sharing and grouping |
| = 30 + 5 = 35 | | or repeated addition 2+2+2+2 | Sharing – 6 sweets are shared between 2 people. How many do they have each? |
| refine to partitioning the second number only: | 39 40 42 | | * |
| 23 + 12 = 23 + 10 + 2 = 33 + 2 = 35 | Subtract 9 or 11. Begin to add/subtract 19 or 21 35 - 9 = 26 +1 | | - •••• |
| +10 +2 | 25 26 35 | Doubling multiples of 5 up to 50 | 6 ÷ 2 can be modelled as: |
| 23 33 | 3: -10 Use known number facts and place value to | Partition | Grouping – There are 6 sweets. How many people can have 2 each? (How many 2's |
| Add 9 or 11 by adding 10 and adjusting by 1 35 + 9 = 44 | $\frac{\text{subtract}}{37 - 12} \text{ (partition second number only)}$ 37 - 12 = 37 - 10 - 2 = 27 - 2 | 15×2 20 + 10 = 30 | make 6?) |
| +10 | = 25 25 27 37 | 0R | |
| 35 44 -1 45 | | x 10 5 2 20 10 | 0 2 4 6 |
| | -2 -10 | | |

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| AdditionSubtractionMultiplicationDivision $\frac{z = signs and missing numbers= signs and missing numbersDivision\frac{z = signs and missing numbers= signs and missing numbersContinue using a range of equations as inYear and 2 but with appropriate numbers.= signs and missing numbersPartition into tens and ones and recombine.Partition both numbers and recombine.a + 30Eind a small difference by counting upnumbers e.g. 102 - 97 - 5Number linesSubtract mentality a 'near multiple of 10' to or froma two-dialt numbers e.g. 35 + 6= 89Subtract mentality a 'near multiple of 10' to or fromatwo-dialt numbers e.g. 162 - 97 - 5Number lines6 x3\frac{+30}{+3}\frac{+6}{+3}Subtract mentality a 'near multiple of 10' to or fromatwo-dialt numbers e.g. 162 - 97 - 5Number lines6 x3\frac{+30}{+3}\frac{+6}{+3}Subtract mentality a 'near multiple of 10' to or fromstated battingfor the same as 76 - 50 + 1Arays and repeated additioncontinue as in Year 2 but with appropriatenumbers e.g. 35 + 19 is the same as 35 + 20 - 1.Number facts and place value tostated battingfor 15 - 1030 + 32 + 152 + 125 $ | Year 3 | | | |
|--|--|---|--|--|
| Continue using a range of equations as in Year 1 and 2 but with appropriate, larger numbers. Partition into tens and ones and recombine Partition into tens and ones and recombine Partition both numbers and recombine. Refine to partitioning the second number only e.g. 36 + 53 = 53 + 30 + 6 = 89 Partition $\frac{1}{30} + \frac{1}{30} $ | Addition | Subtraction | Multiplication | Division |
| Partition into tens and recombine. Partition into tens and recombine. Partition both numbers and recombine. Partition both numbers and recombine. 30 + 53 = 53 + 6 = 89 | Continue using a range of equations as in Year | Continue using a range of equations as in | Continue using a range of equations as in | Continue using a range of equations as in |
| $\begin{array}{c ccccccccccccccccccccccccccccccccccc$ | Partition into tens and ones and recombinePartition both numbers and recombine. Refine to partitioning the second number only e.g. $36 + 53 = 53 + 30 + 6$ $= 83 + 6$ $= 89$ 40 $+30$ 40 $+6$ 40 $+30$ 40 $+6$ 53 83 83 89 Add a near multiple of 10 to a two-digit numbernumber continue as in Year 2 but with appropriate numbers e.g. $35 + 19$ is the same as $35 + 20 - 1$.pencil and paper procedures $83 + 42 = 125$ $80 + 3$ $\pm 40 + 2$ $120 + 5 = 125$ 83 83 ± 42 120 83 ± 42 120 83 ± 42 120 | Find a small difference by counting up Continue as in Year 2 but with appropriate numbers e.g. $102 - 97 = 5$ Subtract mentally a 'near multiple of 10' to or from a two-digit number Continue as in Year 2 but with appropriate numbers e.g. $78 - 49$ is the same as $78 - 50 + 1$ Use known number facts and place value to <u>subtract</u> Continue as in Year 2 but with appropriate numbers e.g. 97 - 15 = 72 82 82 87 -5 -10 Pencil and paper procedures Complementary addition 84 - 56 = 28 +4 +20 +4 +20 +4 +20 +4 +20 +4 +20 +4 +20 +4 +20 +4 +20 +4 +20 +4 +20 +4 +20 +4 +20 +4 +20 +4 +20 +4 +20 +4 +20 +4 +20 +4 +20 +4 +20 | Number lines 6×3 0 6 12 13 Arrays and repeated addition Continue to understand multiplication as repeated addition and continue to use arrays (as in Year 2). Doubling multiples of 5 up to 50 $35 \times 2 = 70$ Partition $\frac{x}{2}$ 30 5 2 60 10 Use known facts and place value to carry out simple multiplications Use the same method as above (partitioning), e.g. $32 \times 3 = 96$ x 30 2 | Understand division as sharing and grouping 15 ÷ 3 can be modelled as: Sharing – 15 shared between 3 (see Year 2 diagram) OR 0 3 6 9 12 15 Or 18 ÷ 3 can be modelled as: Sharing – 18 shared between 3 (see Year 2 diagram) Grouping - How many 3's make 18? 16 ÷ 3 = 5 r1 Sharing - 16 shared between 3, how many left over? Grouping – How many 3's make 16, how many left over? e.g. |
| | | | | |

| Either partition both numbers and recombine or g_{0} 5003 – 4986 = 7 This can be modelled as: g_{0} 5003 – 4986 = 7 This can be modelled as: g_{0} 5003 – 4986 = 7 This can be modelled as: g_{0} 5003 – 4986 = 7 This can be modelled as: g_{0} 5003 – 4986 = 7 This can be modelled as: g_{0} 5003 – 4986 = 7 This can be modelled as: g_{0} 5003 – 4986 = 7 This can be modelled as: g_{0} 5003 – 4986 = 7 This can be modelled as: g_{0} 5003 – 4986 = 7 This can be modelled as: g_{0} 401 + (12) = g_{0} 5003 – 4986 = 7 This can be modelled as: g_{0} 41 g_{0} 5 g_{0} + (12) = g_{0} g_{0} + (12) = g_{0} + (12) = g_{0} + (12) = g_{0} g_{0} + (12) = g_{0} + (12) + | Year 4 | | | |
|---|--|--|--|--|
| Continue using a range of equations as in Year 1 and 2 but with appropriate numbers. Partition in the sens and ones and recombine or partition the second number of use of the number of the second | Addition | Subtraction | Multiplication | Division |
| 1 and 2 but with appropriate numbers. Partition into tens and nees and recombine of partition the second number only e.g. $430 + 4986 = 7$ = 85 + 7 $= 92^{-}$ $= 430^{-} + 7^{-}$ $= 55^{-}$ $= 92^{-}$ $= 430^{-} + 7^{-}$ $= 430^{-} + 7^{-}$ $= 55^{-}$ $= 92^{-}$ $= 430^{-} + 7^{-}$ $= 30^{-} + 7^{-} + 7^{-}$ $= 30^{-} + 7^{-} + 7^{-}$ $= 30^{-} + 7^{-} + $ | + = signs and missing numbers | - = signs and missing numbers | | ÷ = signs and missing numbers |
| Partition into tens and ones and recombine Either partition the scenario durb bach numbers and recombine Either partition the scenario durb bach numbers and recombine 55 + 37 = 55 + 30 + 7 $= 92^{-1}$ $\frac{130}{55 + 32} = 55 + 30 + 7$ $= 92^{-1}$ $\frac{130}{55 + 32} = 55 + 30 + 7$ $= 92^{-1}$ $\frac{130}{55 + 32} = 55 + 30 + 7$ $= 92^{-1}$ $\frac{130}{55 + 32} = 55 + 30 + 7$ $= 92^{-1}$ $\frac{130}{55 + 32} = 55 + 30 + 7$ $= 92^{-1}$ $\frac{130}{55 + 32} = 55 + 30 + 7$ $= 92^{-1}$ $\frac{130}{55 + 32} = 55 + 30 + 7$ $= 92^{-1}$ $\frac{130}{55 + 32} = 55 + 30 + 7$ $= 92^{-1}$ $\frac{130}{55 + 32} = 55 + 30 + 7$ $= 92^{-1}$ $\frac{130}{55 + 32} = 55 + 30 + 7$ $\frac{130}{55 + 32} = 55 + 30 + 7$ $\frac{130}{55 + 32} = 55 + 20 + 51 + 52 + 75$ $\frac{130}{20 + 15} = 77$ $\frac{7}{7} + \frac{82}{5} - \frac{92}{2}$ $\frac{7}{55 - 10}$ Pencil and paper procedures Complementary addition 76 + 86 = 668 $\frac{14}{53} + \frac{4}{5} + \frac{4}{5$ | | | | |
| Either partition both numbers and recombine or g_{0} , 5003 – 4996 = 7 $\frac{1}{23 \times 4} = 92$ $\frac{1}{23 \times 4} = (20 \times 4) + (3 \times 4)$ = (80) + (12) = 92 $\frac{1}{92}$ $\frac{1}{92} = 15 = 77$ $\frac{1}{92} = 15 = 77$ $\frac{1}{7}$ $\frac{1}{92} = 15 = 77$ $\frac{1}{7}$ $\frac{1}{220}$ $\frac{3}{300 + 50 + 8}$ $\frac{1}{330 + 50 + 8}$ $\frac{1}{300 + 50 + 8}$ $\frac{1}{300 + 50 + 8}$ $\frac{1}{31}$ Extend to decimals in the context of money}{\frac{4}{31}} Extend to decimals in the context of money}{\frac{4}{31}} $\frac{1}{220}$ $\frac{1}{300}$ $\frac{1}{300}$ $\frac{1}{300}$ $\frac{1}{300}$ $\frac{1}{300}$ $\frac{1}{300}$ $\frac{1}{300}$ $\frac{1}{300}$ $\frac{1}{300}$ $\frac{1}{300}$ | 1 and 2 but with appropriate numbers. | and 2 but with appropriate numbers. | Year 2 but with appropriate numbers | Year 2 but with appropriate numbers. |
| Either partition both numbers and recombine or g_{0} , 5003 – 4996 = 7 r_{1} This can be modelled on an empty number line (see complementary addition below). = $85 + 7$ = $85 + 7$ = $85 + 7$ = $85 + 7$ = $85 + 7$ = $85 + 7$ = $85 + 7$ = $85 + 7$ = 22 $x 4 = (20 \times 4) + (3 \times 4)$ = $(80) + (12)$ = 92 $x 4 = (20 \times 4) + (3 \times 4)$ = $(80) + (12)$ = 92 $x^{2} = (80) + (12)$ = 92 $x^{2} = (10) + (10) + (12)$ = 92 $x^{2} = (10) + (12) +$ | Partition into tens and ones and recombine | Find a small difference by counting up | Partition | Sharing and grouping |
| $\frac{55 + 37 = 55 + 30 + 7}{= 92}$ $\frac{-30 + 7}{55 + 30 + 7}$ $= 92$ $\frac{-30 + 7}{55 + 30 + 7}$ $= 92$ $\frac{-30 + 7}{55 + 30 + 7}$ $= 92$ $\frac{-30 + 7}{55 + 30 + 7}$ $= 92$ $\frac{-30 + 7}{55 + 30 + 7}$ $= 92$ $\frac{-30 + 7}{55 + 30 + 7}$ $= 92$ $\frac{-30 + 7}{55 + 30 + 7}$ $= 92$ $\frac{-30 + 7}{55 + 30 + 7}$ $= 92$ $\frac{-30 + 7}{55 + 30 + 7}$ $\frac{300 + 50 + 8}{120 + 30 + 10}$ $\frac{300 + 50 + 8}{120 + 30 + 10}$ $\frac{300 + 50 + 8}{120 + 30 + 10}$ $\frac{300 + 50 + 8}{1120 + 11 + 431 + 100}$ $\frac{300}{431}$ $\frac{300 + 50 + 8}{1120 + 11 + 431 + 100}$ $\frac{300}{431}$ $\frac{300 + 50 + 8}{1120 + 10}$ $\frac{300}{431}$ $\frac{300 + 10}{1100 + 10}$ $\frac{300}{431}$ $\frac{300}{52 + 98 - 8688}$ $\frac{114 + 400 + 154}{86 + 100 + 10}$ $\frac{300}{700 + 754}$ $\frac{300 + 200 + 10}{100 + 10}$ $\frac{300}{2100 + 10}$ $\frac{300}{2100 + 10}$ $\frac{300}{2100 + 10}$ $\frac{300}{2100 + 10}$ $\frac{300}{10}$ $\frac{300}{431}$ $\frac{300}{754 + 86 - 6688}$ $\frac{300}{110}$ $\frac{300}{754 + 86 - 668}$ $\frac{300}{10}$ $\frac{300}{700 + 754}$ $\frac{300}{2100 + 10}$ $\frac{300}{10}$ $\frac{300}{2100 + 10}$ $\frac{300}{10}$ $\frac{300}{2100 + 10}$ $\frac{300}{10}$ \frac | Either partition both numbers and recombine or | e.g. 5003 – 4996 = 7 | 23 x 4 = 92 | 30 ÷ 6 can be modelled as: |
| $ \begin{array}{c} = 85 + 7 \\ = 92 \\ \hline +30 \\ +7 \\ \hline 55 \\ 85 \\ 92 \\ \hline \\ $ | | | | |
| $= 92$ $\frac{+30}{55} + \frac{17}{6} + \frac{17}{6} + \frac{17}{11} + \frac{17}{12} + \frac{17}{2} + \frac{17}{5} + \frac{5}{2} + 25 + \frac{5}{2} + \frac{5}{2} + \frac{5}{2} + \frac{5}{2} + \frac{5}{2} + \frac{17}{5} + \frac{5}{2} + \frac{25}{5} + \frac{5}{17} + \frac{5}{5} + \frac{17}{5} + \frac{5}{2} + \frac{25}{5} + \frac{5}{5} + \frac{5}{5} + \frac{10}{5} + 10$ | | (see complementary addition below). | | number of groups counted e.g. |
| $\frac{+30}{55} + \frac{+7}{10}$ $\frac{adiust.}{55}$ $\frac{adiust.}{5}$ $adiust.$ | | Subtract the nearest multiple of 10, then | | +6 $+6$ $+6$ $+6$ $+6$ |
| Contruct as in Year 2 and 3 but with appropriate formal sine sine sine sine sine sine sine sine | . 20 | | _ 32 | |
| $\frac{1}{55} \qquad 85 \qquad 92$ $\frac{Add \text{ the nearest multiple of 10, then adjust}}{2 - 15 = 77}$ $\frac{Add \text{ the nearest multiple of 10, then adjust}}{3 2 - 15 = 77}$ $\frac{300 + 120 + 11 = 431 \qquad 11}{20}$ $\frac{300 + 120 + 11 = 431 \qquad 11}{20}$ $\frac{300}{301}$ Extend to decimals in the context of money (vertically) 2 2.50 + 1.75 = £ 4.25 £ 2.50 + \frac{1}{2} \cdot \frac{1}{5} = \frac{1}{75} $\frac{x}{12} = \frac{70}{2}$ $\frac{x}{14} = \frac{70}{2}$ $\frac{2}{30} = \frac{2100}{60}$ $\frac{x}{14} = \frac{70}{2}$ $\frac{2}{30} = \frac{2100}{60}$ $\frac{x}{10} = \frac{70}{2}$ $\frac{2}{2} \cdot \frac{20}{2} = \frac{1}{2}$ $\frac{x}{14} = \frac{70}{2}$ $\frac{2}{2} \cdot \frac{20}{2} = \frac{3}{2}$ $\frac{x}{14} = \frac{70}{2}$ $\frac{2}{30} = \frac{2100}{60}$ $\frac{1}{6}$ $\frac{x}{14} = \frac{70}{2}$ $\frac{2}{2} \cdot \frac{20}{2} = \frac{1}{2}$ $\frac{2}{2} \cdot \frac{20}{2} = \frac{1}{2}$ $\frac{2}{2} \cdot \frac{2}{2} \cdot \frac{2}{2} = \frac{1}{2}$ $\frac{2}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{2}$ $\frac{1}{2} \cdot \frac{1}{2} = \frac{1}{2}$ $\frac{1}{2} \cdot \frac{1}{2} = \frac{1}{2} \cdot \frac{1}{2}$ $\frac{1}{2} \cdot \frac{1}{2} = \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} \cdot \frac{1}{2} = $ | +30 +7 | Continue as in Year 2 and 3 but with appropriate | | 0 6 12 18 24 30 |
| $\frac{55}{85} \frac{85}{92}$ $\frac{Add the nearest multiple of 10, then adjust}{Continue as in Year 2 and 3 but with appropriate numbers e.g. 63 + 29 is the same as 63 + 30 - 1$ $\frac{Pencil and paper procedures}{368 + 73 - 431}$ either or $\frac{300+50+8}{300+120+11 = 431} \frac{73}{11}$ $\frac{77}{300} \frac{73}{5} - 10$ $\frac{Pencil and paper procedures}{300}$ $\frac{300}{300}$ $\frac{300}{431}$ Extend to decimals in the context of money (vertically) \\ \pounds 2.50 + \pounds 1.75 = \pounds 4.25 $\frac{\pounds 2.50}{\pounds 2.50} + \frac{1.75}{\pounds 4.25}$ $\frac{1}{\pounds 2.50} + \pounds 1.75 = \pounds 4.25$ $\frac{1}{\pounds 2.50} + \xi 1.75 = \xi 4.25$ $\frac{1}{42.55} + \xi 4.25$ $\frac{1}{$ | | numbers. | OR | sharing – sharing among 6, the number |
| $\frac{30}{4dt \text{ the nearest multiple of 10, then adjust}}{20 + 15 = 77}$ $\frac{\text{Add the nearest multiple of 10, then adjust}}{300 + 3 \text{ but with}}$ $\frac{300 + 50 + 8}{358 + 70 + 3} = \frac{73}{300 + 120 + 11} = 431$ $\frac{120}{300}$ $\frac{300}{300}$ $\frac{300}{431}$ Extend to decimals in the context of money (vertically) \\ \pounds 2.50 + \pounds 1.75 = \pounds 4.25 $\pounds 2.50 + \pounds 1.75 = \pounds 4.25$ $4.25 + 4.$ | | Use known number facts and place value to | Lise the grid method of multiplication (as | given to each person |
| Add the nearest multiple of 10, then adjust Continue as in Year 2 and 3 but with appropriate numbers e.g. 63 + 29 is the same as 63 + 30 - 1 $92-15 = 77$ 77829292-15 = 7777778292759300+50+8358+ 70+373300+50+8358+ 70+373300+120+11 = 43111120300300431Extend to decimals in the context of money (vertically)£ 2.50 $\pm 1.75 = \pounds 4.25$ ± 2.50 < | 55 85 92 | | | |
| Continue as in Year 2 and 3 but with appropriate numbers e.g. 63 + 29 is the same as $63 + 30 - 1$ Pencil and paper procedures 300+50+8 $35870+32 - 5 - 10300+50+8$ $35870+32 - 5 - 10Pencil and paper procedures300+120+11 = 431 \frac{73}{11}120300431Extend to decimals in the context of money(vertically)2.5.0 + \pounds 1.75 = \pounds 4.25\pounds 2.50\pm \pounds 1.75 = \pounds 4.25\pm 2.50\pm 1.4 \pm 600 700 754Revert to expanded methods if the children(Revert to expanded methods if the children$ | Add the nearest multiple of 10, then adjust | | | |
| appropriate numbers e.g. 63 + 29 is the same as $63 + 30 - 1$ Pencil and paper procedures 358 + 73 = 431 either or 300+50+8 $358+ 70+3 \frac{73}{11}300+120+11 = 431 \frac{11}{120}\frac{300}{431}Extend to decimals in the context of money(vertically)\pounds 2.50 + \pounds 1.75 = \pounds 4.25\pounds 2.50\pm \pounds 1.75\frac{\pounds 4.25}{1}(Revert to expanded methods if the children(Revert to expanded methods if the children)$ | Continue as in Year 2 and 3 but with | 77 82 92 | | |
| $\begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} $ | | | | |
| $\frac{358 + 73 = 431}{\text{either}}$ $\frac{300 + 50 + 8}{300 + 120 + 11 = 431}$ $\frac{73}{11}$ $\frac{73}{300 + 120 + 11 = 431}$ $\frac{73}{11}$ $\frac{120}{300}$ $\frac{300}{431}$ Extend to decimals in the context of money (vertically) $\frac{2 2.50 + \pounds 1.75 = \pounds 4.25}{\pounds 2.50}$ $\frac{14}{12}$ $\frac{14}{100}$ $\frac{1000}{700}$ $\frac{11}{100}$ $\frac{1000}{700}$ $\frac{11}{100}$ $\frac{1000}{700}$ $\frac{11}{100}$ $\frac{1000}{700}$ $\frac{11}{100}$ $\frac{1000}{700}$ $\frac{11}{100}$ $\frac{11}{100}$ $\frac{1000}{700}$ $\frac{11}{100}$ 1 | | | | 10 groups |
| $\begin{array}{c c c c c c c c c c c c c c c c c c c $ | | | | |
| $\begin{array}{c} 300+50+8 \\ + & 70+3 \\ 300+120+11 = 431 \\ 120 \\ 300 \\ 431 \\ Extend to decimals in the context of money (vertically) \\ \pounds 2.50 + \pounds 1.75 \\ \pounds 2.50 \\ + \pounds 1.75 \\ \frac{1}{5} \frac{4.25}{1} \\ \end{array}$ (Revert to expanded methods if the children) $\begin{array}{c} \text{Pencil and paper procedures} \\ \text{complementary addition} \\ 754 - 86 = 668 \\ +14 \\ 86 \\ 100 \\ 700 \\ 754 \\ \end{array}$ $\begin{array}{c} \text{x} & 20 \\ 3 \\ 7 \\ 140 \\ 21 \\ \end{array}$ $\begin{array}{c} \text{x} & 70 \\ 2 \\ 30 \\ 2100 \\ 60 \\ 8 \\ 560 \\ 16 \\ \end{array}$ $\begin{array}{c} \text{x} & 70 \\ 2 \\ 30 \\ 2100 \\ 60 \\ 8 \\ 560 \\ 16 \\ \end{array}$ $\begin{array}{c} \text{x} & 70 \\ 2 \\ 30 \\ 2100 \\ 60 \\ 8 \\ 560 \\ 16 \\ \end{array}$ $\begin{array}{c} \text{x} & 70 \\ 2 \\ 30 \\ 2100 \\ 60 \\ 8 \\ 560 \\ 16 \\ \end{array}$ | either or | -5 -10 | | |
| $\begin{array}{c} + & 70+3 \\ 300+120+11 = 431 \\ 120 \\ 300 \\ 431 \\ \hline \\ 140 \\ \hline \\ 7 \\ \hline \\ 140 \\ 21 \\ \hline \\ 7 \\ \hline \\ 140 \\ 21 \\ \hline \\ 7 \\ \hline \\ 140 \\ 21 \\ \hline \\ OR \\ 41 = (10 \times 4) + 1 \\ \hline \\ Pencil and paper procedures \\ Complementary addition \\ 754 - 86 = 668 \\ \hline \\ +14 \\ \hline \\ +600 \\ +54 \\ \hline \\ 86 \\ 100 \\ \hline \\ \hline \\ 100 \\ \hline \\ \\ 86 \\ \hline \\ 100 \\ \hline \\ \\ \\ 86 \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $ | 200.50.0 | | | |
| 300+120+11 = 431 11 120 300 431 Extend to decimals in the context of money (vertically) £ 2.50 + £ 1.75 = £ 4.25 $\frac{5}{2.50}$ $\frac{1}{5} \frac{4.25}{1}$ (Revert to expanded methods if the children (Revert to expanded Revert to expand | | | x 20 3 | 10 x 4 |
| $\frac{120}{300}$ $\frac{300}{431}$ Extend to decimals in the context of money (vertically) $\pounds 2.50 + \pounds 1.75 = \pounds 4.25$ $\pounds 4.25$ (Revert to expanded methods if the children (Revert to expanded methods if the children $\frac{120}{300}$ $\frac{300}{431}$ $\frac{754 - 86 = 668}{754 - 86 = 668}$ $\frac{14}{14} + \frac{600}{+54} + 54$ $\frac{x}{70} \frac{70}{2}$ $\frac{30}{30} \frac{2100}{60} \frac{60}{8}$ $\frac{x}{560} \frac{72}{16}$ $\frac{30}{2100} \frac{2100}{60} \frac{60}{22}$ $\frac{20}{2} (4 \text{ groups) or } (4 \times 5)$ $\frac{20}{2} (4 \text{ groups) or } (4 \times 5)$ | | | 7 140 21 | -1 -40 |
| $\frac{300}{431}$ Extend to decimals in the context of money (vertically) $\pounds 2.50 + \pounds 1.75 = \pounds 4.25$ $\pounds 2.50$ $+ \pounds 1.75 = \pounds 4.25$ $\frac{1}{2} \frac{1.75}{1}$ (Revert to expanded methods if the children $\frac{1}{10}$ (Revert to expanded methods | | | | OR $41 - (10 \times 4) + 1$ |
| Extend to decimals in the context of money (vertically) $\pounds 2.50 + \pounds 1.75 = \pounds 4.25$ $\pounds 4.25$ 1 (Revert to expanded methods if the children (431) $\pounds 2.50 + \pounds 1.75 = \pounds 4.25$ $\pounds 4.25$ 1 (Revert to expanded methods if the children) (Revert to expanded methods if the children) | | (20) | | |
| $\begin{array}{c c} (vertically) \\ \pounds 2.50 + \pounds 1.75 = \pounds 4.25 \\ \pounds 2.50 \\ + \pounds 1.75 \\ 1 \\ \hline \\ 1 \\ \hline \\ \hline \\ 1 \\ \hline \\ \hline \\ \hline \\ \hline$ | | +14 +000 +54 | | $72 \div 5$ lies between $50 \div 5 = 10$ and $100 \div 5$ |
| $\begin{array}{c c} \pounds 2.50 + \pounds 1.75 = \pounds 4.25 \\ \pounds 2.50 \\ + \pounds 1.75 \\ \frac{1}{\pounds 4.25} \\ 1 \end{array} \\ (Revert to expanded methods if the children \end{array} \qquad \begin{array}{c c} 86 & 100 & 700 & 754 \\ \hline 30 & 2100 & 60 \\ \hline 8 & 560 & 16 \end{array} \qquad \begin{array}{c c} 72 \\ - & 50 \\ \hline 22 \\ - & 20 \\ 2 \end{array} (10 \text{ groups) or } (10 \times 5) \\ - & 20 \\ 2 \end{array} \\ (A \text{ groups) or } (4 \times 5) \\ \hline 22 \\ - & 20 \\ 2 \end{array}$ | | | x 70 2 | |
| $\frac{1}{2} \frac{2100}{1}$ (Revert to expanded methods if the children) $\frac{22}{20} = \frac{22}{20} (4 \text{ groups}) \text{ or } (4 \times 5)$ | $\pounds 2.50 + \pounds 1.75 = \pounds 4.25$ | 26 100 700 754 | | |
| $\frac{4 \pm 1.75}{\pm 4.25}$ (Revert to expanded methods if the children) $8 560 16 -\frac{20}{2} (4 \text{ groups}) \text{ or } (4 \times 5)$ | | 80 100 700 734 | | - <u>50</u> (10 groups) of (10 x 5) |
| (Revert to expanded methods if the children | | | 8 560 16 | |
| | <u> </u> | | | 2 |
| experience any difficulty.) | (Revert to expanded methods if the children | | | Answer: 14 remainder 2 |
| | experience any difficulty.) | | | Answer . 14 remainuer z |
| | | | | |
| | | | | |

| | Year 5 | | |
|---|--|---|---|
| Addition | Subtraction | Multiplication | Division |
| + = signs and missing numbers | - = signs and missing numbers | x = signs and missing numbers | ÷ = signs and missing numbers |
| Continue using a range of equations as in Year | Continue using a range of equations as in Year 1 | Continue using a range of equations as in | Continue using a range of equations as in |
| 1 and 2 but with appropriate numbers. | and 2 but with appropriate numbers. | Year 2 but with appropriate numbers | Year 2 but with appropriate numbers. |
| Partition into hundreds, tens and ones and | | | |
| recombine | Find a difference by counting up | Partition | Sharing and grouping |
| Either partition both numbers and recombine or | e.g. 8006 – 2993 = 5013 | 47 x 6 = 92 | Continue to understand division as both |
| partition the second number only e.g. | This can be modelled on an empty number line | | sharing and grouping (repeated |
| 358 + 73 = 358 + 70 + 3 = 428 + 3 | (see complementary addition below). | $47 \times 6 = (40 \times 6) + (7 \times 6)$ | subtraction). |
| = 420 + 3 = 431 | Subtract the nearest multiple of 10 or 100, | = (240) + (42) = 282 | Remainders |
| | then adjust. | - 202 | Quotients expressed as fractions or decimal |
| +70 +3 | Continue as in Year 2, 3 and 4 but with | OR | fractions |
| \frown | appropriate numbers. | ON CON | $61 \div 4 = 15 \frac{1}{4}$ or 15.25 |
| | | Lies the grid method of multiplication (as | |
| 250 400 401 | Use known number facts and place value to | Use the grid method of multiplication (as below) | +40 +20 +1 |
| 358 428 431 | subtract | Delow) | |
| Add or subtract the nearest multiple of 10 or | 6.1 - 0.4 = 5.7 | | 10 groups 5 groups |
| 100, then adjust | 5.7 6.0 6.1 | Pencil and paper procedures | |
| Continue as in Year 2, 3 and 4 but with | | Grid method | OR |
| appropriate numbers e.g. 458 + 79 = is the | -0.3 -0.1 | 72 x 38 is approximately 70 x 40 = 2800 | OR |
| same as 458 + 80 - 1 | | x 70 2 | 0 1 21 61 |
| Pencil and paper procedures Leading to formal method, showing numbers | Pencil and paper procedures | | |
| carried underneath for G&T children. | Complementary addition | 30 2100 60 | 5 groups 10 groups |
| 358 | 754 - 286 = 468 | | -1 -20 |
| <u>+ 73</u> | 100 | 8 560 16 | -1 -20 -40 |
| | +14 +400 +54 | | |
| <u>431</u> | \sim | Extend to simple decimals with one decimal | Pencil and paper procedures |
| Extend to numbers with at least four digits | | place. | 256 ÷ 7 lies between 210 ÷ 7 = 30 and 280 |
| 3587 + 675 = 4262 | 286 300 700 754 | | $\div 7 = 40$ |
| 3587 | | 12.5 | |
| + 675 | 00 754 000 400 | $\frac{x}{10}$ (20×05) | 36 r 4 |
| <u>4262</u> 111 | OR 754 - 286 = 468 | 1.0 (2.0 x 0.5) 4.0 (2.0 x 2.0) | 7 256 |
| | | $\begin{array}{c} 4.0 & (2.0 \times 2.0) \\ \underline{20.0} & (2.0 \times 10.0) \end{array}$ | . 200 |
| Revert to expanded methods if the children | 14 (300) can be refined to 14 (300) | 25.0 | Answer: 36 remainder 4 |
| experience any difficulty. Extend to decimals (same number of decimals | 400(700) $454(754)$ | | |
| | | Moving to formal methods of multiplication | |
| | 400 | for decimals. Carrying numbers underneath. | 7 256.00 |
| | | | |
| Extend to decimals (same number of decimals places) and adding several numbers (with different numbers of digits). Model negative numbers using a number line. | <u>54</u> (754) 468 468 | Moving to formal methods of multiplication for decimals. Carrying numbers underneath. | 36.57 7 256.00 |

| Year 6 | | | |
|---|--|--|---|
| Addition | Subtraction | Multiplication | Division |
| <u>+ = signs and missing numbers</u> Continue using a range of equations as in Year 1 and 2 but with appropriate numbers. Partition into hundreds, tens, ones and decimal fractions and recombine | $\frac{- = signs and missing numbers}{Continue using a range of equations as in Year 1 and 2 but with appropriate numbers.} Find a difference by counting up e.g. 0.5 - 0.31 = 0.19This can be modelled on an empty number line (see complementary addition below).$ | x = signs and missing numbersContinue using a range of equations as in Year 2 but with appropriate numbersPartition 87 x 6 = 522 | There are 552 biscuits altogether in a catering pack. How many packets of 24 biscuits can be made from the catering pack? |
| Either partition both numbers and recombine or partition the second number only e.g. 35.8 + 7.3 = 35.8 + 7 + 0.3 = 42.8 + 0.3 = 43.1 +7 +0.3 35.8 42.8 42.8 43.1 | $\begin{array}{c} +0.09 \\ \hline 0.31 \\ \hline 0.4 \\ \hline 0.5 \\ \hline \\ $ | $87 \times 6 = (80 \times 6) + (7 \times 6)$ = (480) + (42) = 522 OR 87 <u>×6</u> 42 (6 × 7) <u>480</u> (6 × 80) 522 (units, then tens, hundreds etc) OR Use the grid method of multiplication (as below) | Start dividing 24 into 552. 24 into 5 will not 'go'. 24 into 55 goes twice. Record the 2 on the top line above the second 5. Record the 48 underneath the 55 and subtract, giving 7. Bring the 2 down and record with the 7 giving 72. |
| Add the nearest multiple of 10, 100 or 1000, then adjust Continue as in Year 2, 3, 4 and 5 but with appropriate numbers including extending to adding 0.9, 1.9, 2.9 etc | Continue as year 5 <u>Pencil and paper procedures</u> Complementary addition 6467 – 2684 = 3783 | Pencil and paper proceduresGrid method 372×24 is approximately $400 \times 20 = 8000$ x 300 702 | 24 into 72 goes three times. Record the 3 on the top line above the 2. Record the 72 underneath the 72 and subtract. Answer zero so no |
| Pencil and paper procedures Extend to numbers with any number of digits and decimals with 1 and 2 decimal places. 124.9 + 117.25 = 242.15 | +16 $+300$ $+34672684 2700 3000 6467$ | 20 6000 1400 40 4 1200 280 8 | 'remainder'. $24 \boxed{552}$ |
| 124.9 + <u>117.25</u> <u>242.15</u> Revert to expanded methods if the children experience any difficulty. Extend to decimals (either one or two decimal places). | OR 6467 - 2684 = 3783 16 (2700) can be refined to 316 (3000) 300 (3000) 300 (3000) 3467 (6467) 3467 (6467) 3783 3783 3783 (Decomposition for G&T children only when secure.) | Extend to decimals with up to two decimal places. 12.5 $\frac{x2.5}{1.25}$ (2.5 x 0.5) 5.0 (2.5 x 2.0) $\frac{25.0}{31.25}$ (2.5 x 10.0) 31.25 Moving to formal methods of multiplication for decimals. Carrying numbers underneath. | $-\frac{48}{72}$ $-\frac{72}{0}$ $552 \div 24 = 23$ There will be 23 packets of 24 biscuits. |

| | There are 558 biscuits. How many |
|--|--------------------------------------|
| | packets of 24? |
| | 23.25 |
| | 24 558.00 |
| | |
| | $\frac{48}{78}$ There will |
| | |
| | be 23 packets with 0.25 of a packet |
| | left over or |
| | <u>72</u> 6 biscuits |
| | left over or $6/24 = 1/4$ left over. |
| | 60 |
| | <u>48</u> |
| | $\frac{48}{180}$ |
| | <u>180</u> |
| | 0 |
| | |
| | A piece of wood measuring 6.75m |
| | is sawn into 5 equal sections. How |
| | long is each section? |
| | long is each section? |
| | |
| | 1.25 |
| | 5 6.75 |
| | |
| | Each section will measure 1.35m. |