

<u>Key vocabulary</u> add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line

- Read and write numbers to 100 in numerals (1-20 in words)
- Count to and across 100
- Recall bonds to 10 and 20, and addition facts within 20 ('story of' 5, 6, 7, 8, 9 and 10)
- Count on in ones from a given 2-digit number
- Add two single-digit numbers by counting on
- Add three single-digit numbers spotting doubles or pairs to 10
- Count on in tens from any given 2-digit number
- Add 10 to any given 2-digit number
- Use number facts to add single-digit numbers to two-digit numbers, e.g. use 4 + 3 to work out 24 + 3, 34 + 3...
- Add by putting the larger number first
- Recognise doubles to double 6



<u>Key vocabulary</u> add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, addition, column, tens boundary

- Locate any 2-digit number on a landmarked line and use this to compare numbers; record comparisons < and >, e.g. 56 > 39.
- Identify any number on the 1-100 number grid; understand that each number is a multiple of ten and some ones, e.g. 54 is 50 and 4 more.
- Add two single digit numbers (8 + 7) by counting up; add two 2-digit numbers which total less than 100 by counting on in tens and ones, e.g. 54 + 37 as 54 + 30 + 7.
- Know securely number pairs for all the numbers up to and including 12
- Count in steps of 2, 5, and 10 from 0.
- Know different unit patterns when not crossing a ten, e.g. 4 + 3 = 7, 14 + 3 = 17, 24 + 3 = 27
- Begin to recognise unit patterns when crossing a ten, e.g. 5 + 6 = 11
- Know pairs with a total of 20 and multiples of 10 to 100
- Count on in ones and tens from any given 2-digit number
- Add two or three single-digit numbers
- Add a single-digit number to any 2-digit number using number facts, including bridging multiples of 10. Add 10 and small multiples of 10 to any given 2-digit number
- Add any pair of 2-digit numbers
- Know that adding can be done in any order
- Solve problems with addition using concrete objects, pictorial representations, involving numbers, quantities and measures, applying written and mental methods

Year 3 Add numbers up to 3 digits

Use partitioning method for addition to add two or three 3-digit numbers or three 2-digit numbers (see year 2) Begin to use compact column addition to add numbers with three digits.

45

34

Use this intermediate step only if children experience difficulty moving on from partitioning method

236

100

309

00

236

+ 73

309

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When do we know children are ready for this method?

Do they know addition and subtraction facts to 20?

Do they understand place value and can they partition numbers?

39

15

Can they explain their mental strategies orally and record them using informal jottings?

Tens

Units

Add the units first, carry numbers underneath the bottom line, remind pupils of actual value e.g., 3 tens add 7 tens.

Units

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Children who are very secure and confident with 3-digit expanded column addition, should be moved onto the compact column addition method, involving carrying. A comparison of the partitioning addition method to compact method is useful to show minimising the number of steps involved.

<u>Key vocabulary</u> add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, addition, column, tens boundary, hundreds boundary, increase, vertical, 'carry', expanded, compact

- Know pairs with each total to 20
- Know pairs of multiples of 10 with a total of 100
- Add any two 2-digit numbers by counting on in 10s and 1s or by using partitioning
- Add multiples and near multiples of 10 and 100
- Add 1,10, 100 to 3-digit numbers
- Understand place value in 3-digit numbers
- Perform place value additions without a struggle. (E.g. 300 + 8 + 50 = 358)
- Use place value and number facts to add a 1-digit or 2-digit number to a 3-digit number. (E.g. 104 + 56 is 160 since 104+50=154 and 6+4=10 and 676 + 8 is 684 since 8=4+4 and 76+4+4=84)
- Add pairs of 'friendly' 3-digit numbers mentally, e.g. 320 + 450
- Begin to add amounts of money using partitioning.
- Solve problems with addition using number facts, place value, missing numbers.

Year 4 Add numbers with up to 4 digits

Continue to use the compact column method, adding units first and carrying underneath the calculation. Also include money and measures contexts.



Children use and apply this method to money and measures. <u>Key vocabulary</u> add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, addition, column, tens boundary, hundreds boundary, increase, vertical, 'carry', expanded, compact, thousands, hundreds, digits, inverse

Key Skills for addition at Year 4

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- Select appropriate method, mental, jottings, written—and explain why
- Add any two 2-digit numbers by partitioning or counting on
- Know by heart/quickly derive number bonds to 100 (E.g. 32 + 68) and to £1 (64p + 36p)
- Add to the next hundred, pound and whole number. (E.g. 234 + 66 = 300, 3.4 + 0.6 = 4)
- Perform place value additions without a struggle. (E.g. 300 + 8 + 50 + 4000 = 4358)
- Add multiples and near multiples of 10, 100 and 1000.
- Add £1, 10p, 1p to amounts of money
- Use place value and number facts to add 1-, 2-, 3-and 4-digit numbers where a mental calculation is appropriate'. (E.g. 4004 + 156 by knowing that 6+4=10 and that 4004+150= 4154 so total is 4160)
- Perform inverse operations to check
- Solve 2-step problems in context
- Continue to practise a wide range of mental addition strategies e.g. Round and adjust, near doubles, numbers bonds, partitioning and recombining

Year 5 Add numbers with more than 4 digits

Including money, measure and decimals with different numbers of decimal places



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Use column addition to add two or three whole numbers



Use column addition to add any pair of two-place decimal numbers including amounts of money.

Say 6 tenths and 7 tenths to reinforce place value Empty decimal places can be filled to with zero to show the place value of each column

Children should:

Understand the place value of tenths and hundredths and use this to align numbers with differing numbers of decimal place.

<u>Key vocabulary</u> add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, addition, column, tens boundary, hundreds boundary, increase, vertical, 'carry', expanded, compact, thousands, hundreds, digits, inverse, decimal places, decimal point, tenths, hundredths, thousandths.

- Locate 5 and 6 digit numbers on a landmarked line; use this to compare/order numbers.
- Round to ten, a hundred, a thousand or ten thousand.
- Use rounding to check accuracy
- Understand a one-place decimal number as a number of tenths and a two-place decimal number as a number of hundredths.
- Add or subtract 0.1 or 0.01 to/from any decimal number with confidence, e.g. 5.83 + 0.01 or 4.83 - 0.1
- Add and subtract mentally with confidence where the numbers are less than 100 or the calculation relies upon simple addition and place value.
- Confidently add numbers with more than 4-digits using a secure written method, including adding 'piles' of numbers
- Use inverse to check calculations



<u>Key vocabulary</u> add, more, plus, and, make, altogether, total, equal to, equals, double, most, count on, number line, sum, tens, units, partition, addition, column, tens boundary, hundreds boundary, increase, vertical, 'carry', expanded, compact, thousands, hundreds, digits, inverse, decimal places, decimal point, tenths, hundredths, thousandths.

- Add mentally with confidence using larger numbers and calculations of increasing complexity
- Add several large numbers using written addition
- Add several large or decimal numbers using written addition
- Perform mental calculations, including with mixed operations and large numbers, using a range of strategies
- Solve multi-step problems
- Use estimation and inverse to check the validity of an answer

Year 1 Subtract from numbers up to 20

Children consolidate understanding of subtraction practically using bead strings, cubes etc. and in real life contexts. They are introduced to more formal recording using number lines, then using empty numbers lines.

5 - 3 = 2



Model subtraction practically and using number tracks, number lines and 100 squares and practically. Find the difference between - this is to be done practically using the language 'find the distance between' and 'how many more

| than | 2 |
|------|---|
|------|---|

UBTRACTION

| practically with the | 7 'Seven is 3 more than four' |
|-----------------------------|-------------------------------|
| language 'find the | 4 |
| 'how many more?' in a | 'I am 2 years older than my |
| range of familiar contexts. | sister' |

<u>Key vocabulary</u> equal to, take, take-away, less, minus, subtract, leaves, distance between, how many more, how many fewer/less than, most, least count back, how many left, how much less is...

- Give a number, say one less
- Count back in ones to from 100 and from any single-digit or 2-digit number.
- Count back in tens from any 2-digit number
- Locate any number on a 1-100 grid or a beaded line 0-100.
- Know number bonds to 10, also know what is left if objects are taken from 10, e.g. 10 fingers, fold down 4, leaves 6 standing.
- Solve one-step problems involving subtraction, using concrete objects (bead strings, objects, cubes) and pictures, and missing number problems
- Recognise the and = signs, and use these to read and write simple subtractions.

Year 2 Subtract with 2-digit numbers

Use practical equipment such as Dienes and Numicon to model sub-

Subtract first on a on a numbered number line, then on an empty number line, by counting back, aiming to develop mental subtraction skills.



<u>Key vocabulary</u> equal to, take, take-away, less, minus, subtract, leaves, distance between, how many more, how many fewer/less than, most, least count back, how many left, how much less is..., difference, count on, strategy, partition, tens units

Key Skills for subtraction at Year 2

UBTRACTION

- Recognise that addition and subtraction are inverse operations and understand that 10 4 = 6 as well as 6 + 4 = 10.
- Count back in ones or tens to take away, e.g. 27 3 = or 54 20 =.
- Begin to count up to find a difference between two numbers with a small gap (42 38). Know when to count on and when to count back
- Recall and use subtraction facts to 20 fluently
- And derive and use related fact to 100
- Subtract using concrete objects, pictorial representations, 100 squares, Dienes, Numicon and mentally, including a 2-digit number and ones, a 2-digit numbers and tens, and two 2-digit numbers
- Use inverse to check calculations.



<u>Key vocabulary</u> equal to, take, take-away, less, minus, subtract, leaves, distance between, how many more, how many fewer/less than, most, least count back, how many left, how much less is..., difference, count on, strategy, partition, tens units, take and make, exchange, digit, value, hundreds

- Understand place value in 3-digit numbers; add and subtract 1s, 10s or 100s without difficulty; use this to add and subtract multiples of 1, 10, 100 to/from 3-digit numbers.
- Mentally subtract any pair of 2 digit numbers, e.g. 75 58
- Recognise that there are two ways of completing subtractions, either by counting up (using ENL) or by counting back, e.g. 54 3 (counting up)
- Subtract mentally using place value and number bonds, e.g. 347-5, 347-40, 347-100)

Year 4 Subtract with up to 4-digit numbers

Subtract using formal column subtraction, using take and make where appropriate.



Use Numicon and Dienes to provide visual image for 'take and make'



Use complementary addition to subtract amounts of money, and for subtractions where the larger number is a near multiple of 1000 or

100

SUBTRACTION



Use counting up with confidence to solve most subtractions, including finding complements to multiples of 100. (E.g. 512 - 287



NB. Children should be encouraged to progress to using the fewest number of jumps

<u>Key vocabulary</u> equal to, take, take-away, less, minus, subtract, leaves, distance between, how many more, how many fewer/less than, most, least count back, how many left, how much less is..., difference, count on, strategy, partition, tens units, take and make, exchange, digit, value, hundreds, inverse

- Mentally subtract any pair of two digit numbers.
- Subtract 3 digit numbers from 3 digit numbers using counting on, e.g.
 426 278 by jumping along a line from 278 to 426
- Practise mental subtraction strategies, e.g. Round and adjust (37–9), using place value
- Use counting on in the context of money and also when subtracting from numbers ending in zeros e.g. 4000-372
- Count backwards through zero, using negative numbers



<u>Key vocabulary</u> equal to, take, take-away, less, minus, subtract, leaves, distance between, how many more, how many fewer/less than, most, least count back, how many left, how much less is..., difference, count on, strategy, partition, tens units, take and make, exchange, digit, value, hundreds, inverse, tenths, hundredths, decimal point, decimal

- Count backwards through zero, using negative numbers
- Add or subtract 0.1 or 0.01 to/from any decimal number with confidence, e.g. 5.83 + 0.01 or 4.83 0.1
- Children need to utilise and consider a range of subtraction strategies, jottings and written methods before choosing how to calculate
- Subtract larger numbers using column subtraction or by counting up
- Begin to subtract decimal numbers using counting up: 6.2 3.5
- Decide which mental methods to use and explain why

<u>Year 6</u> Subtracting with increasingly large and more complex numbers and decimal values.



Including money, measure and decimals with different numbers of decimal places

Use the compact column method to subtract more complex integers



Use compact column method to subtract in context of money, measures, including decimals with different numbers of decimal places.

Pupils should apply their knowledge of a range of mental strategies, mental recall skills, informal and formal written methods when selecting the **appropriate method** to work out subtraction problems. Opportunities to discuss the appropriateness of methods need to be planned for.

Empty decimal places can be filled to with zero to show the place value of each column

<u>Key vocabulary</u> equal to, take, take-away, less, minus, subtract, leaves, distance between, how many more, how many fewer/less than, most, least count back, how many left, how much less is..., difference, count on, strategy, partition, tens units, take and make, exchange, digit, value, hundreds, inverse, tenths, hundredths, decimal point, decimal

- Subtract mentally with confidence where the numbers are less than 100 or the calculation relies upon simple subtraction and place value. Examples include: 6,723 - 400, 72 - 46, 100 - 64
- Subtract large numbers using column subtraction or counting up, e.g. 1323 758
- Subtract decimal numbers using counting up
- Use negative numbers in context and calculate intervals across zero
- Children need to utilise and consider a range of mental subtraction strategies, jottings and written methods before deciding how to calculate
- Decide which methods to use and explain why



Key vocabulary groups of, lots of, times, array, altogether, multiply, count

Key Skills for multiplication at Year 1

- Count in multiples of 2, 5 and 10
- Recognise doubles to double 6
- Solve simple one-step problems involving multiplication and division, calculating the answer using concrete objects, pictorial representations and arrays with the support of the teacher.



<u>Key vocabulary</u> groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, sets of, equal groups, times as big as, once, twice, three times...

- Count in steps of 2, 3 and 5 from zero and in 10s from any number
- Know the 2X, 5X and 10X tables and begin to say how many 10s are in 40 or how many 5s are in 30; recognise odd and even answers
- Write and calculate number statements using x and = signs
- Show that multiplication can be done in any order
- Solve a range of problems involving multiplication, using concrete objects, arrays, repeated addition, Numicon, mental methods and multiplication facts



- Multiply multiples of ten by a single digit (Smile multiplication) using their knowledge of multiplication facts and times tables.
- Recall and work out multiplication facts in the 2,3,4,5,8 and 10 times tables

30 X 80 = 2400 Do the tables bit, 24 Then make it 10, 100 or 1000 times bigger!

<u>Key vocabulary</u> groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, sets of, equal groups, times as big as, once, twice, three times..., partition, grid method, multiple, product, tens, units, value

- Understand that multiplication is commutative, e.g. 4×8 is the same as 8×4 .
- Know the 2x, 3x, 5x and 10x times tables. All tables need to be learned to 12th multiple.
- Multiply any 2-digit number by 10 or a single-digit number by 100;
- Understand the effect of multiplying whole numbers by 10 and 100.
- Multiply a 1 digit number by a 2 digit number starting to use the grid
- Solve multiplication problems involving missing numbers

Year 4 Multiply 2 and 3 digits by a single digit using all multiplication tables up to 12×12 Developing the grid method: Encourage 500 mental addition Eq. $136 \times 5 = 680$ or use of 150 column addition 100 30 × 6 30 5 to add 500 150 30 accurately. 680

Move onto short multiplication (see Y5) if and when children are confident and accurate multiplying 2 and 3 digit numbers by a single digit this way and are already confident in carrying for written addition.

Children should be able to:

- Approximate before they calculate and make this a regular part of their calculating, going back to their approximation to consider the reasonableness of their answer
- Record an approximation to check their answer against
- Multiply multiples of 10 and 100 by a single digit, using smile multiplication
- Recall all times tables up to 12 x 12



<u>Key vocabulary</u> groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, sets of, equal groups, times as big as, once, twice, three times..., partition, grid method, multiple, product, tens, units, value, inverse

Key Skills for addition at Year 4

• Multiply 1 and 2 digit numbers by 10, 100 and 1000; to understand place value in decimal numbers with one place.

• Know and recite 2x, 3x, 4x, 5x, 9x, 10x times tables up to 12th multiple; include multiplying by 0 (e.g. $5 \times 0 = 0$, $7 \times 0 = 0$) or by 1 (e.g. $5 \times 1 = 5$, $\frac{1}{2} \times 1 = \frac{1}{2}$).

- Multiply 1- digit numbers by 2-digit or friendly 3-digit numbers using grid method.
- Find doubles to double 100 and beyond, using partitioning
- Begin to double amounts of money
- Use doubling as strategy for multiplying by 2, 4, 8
- Count in multiples of 6, 7, 9, 25 and 1000



<u>Key vocabulary</u> groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, sets of, equal groups, times as big as, once, twice, three times..., partition, grid method, multiple, product, tens, units, value, inverse, square, factor, integer, decimal, short/long multiplication, 'carry'

- Know and recite all times tables including division facts.
- Multiply 2- and 3-digit numbers by numbers ≤12 using grid method; multiply 2-digit by 2-digit numbers using grid method.
- Identify multiples and factors, using knowledge of multiplication tables up to 12 \times 12
- Scale up or down by a factor of 2, 5 or 10
- Multiply integers and decimals by 10, 100, 1000
- Recognise and use squared, cubes and their notations



<u>Key vocabulary</u> groups of, lots of, times, array, altogether, multiply, count, multiplied by, repeated addition, column, row, sets of, equal groups, times as big as, once, twice, three times..., partition, grid method, multiple, product, tens, units, value, inverse, square, factor, integer, decimal, short/long multiplication, 'carry', tenths, hundredths, decimal

- Recall multiplication facts up to 12 x 12
- Use short multiplication to multiply a 1-digit number by a number with up to 4 digits
- Use long multiplication to multiply a 2-digit by a number with up to 4 digits
- Use short multiplication to multiply a 1-digit number by a number with one or two decimal places, including amounts of money.
- Multiply fractions and mixed numbers by whole numbers.
- Multiply fractions by proper fractions.
- Use percentages for comparison and calculate simple percentages.
- Estimate answers using rounding and approximation

<u>Year 1</u> Group and share small quantities

Using both objects diagrams and pictorial representations, to solve problems involving both grouping and sharing.

Grouping:

Sharing:

Pupils should:



12 shared between 3 is 4

Children should solve a division problem within a context.

E.g. 5 children share 15 sweets. How many does each child get?

Can they solve this and write a division statement e.g. 15 sweets shared between 5 children gives 3 each.

Use Gordons 'Grouping' and 'Sharing' ITPs to model.

- use lots of practical apparatus, arrays and picture representations
- Be taught to understand the difference between "grouping" objects (How many groups of 2 can you make?) and "sharing" (Share these sweets between 2 people)
- Be able to count in multiples of 2s, 5s and 10s.
- Find half of a group of objects by sharing into 2 equal groups.

<u>Key vocabulary</u>

share, share equally, one each, two each..., group, groups of, lots of, array

- Solve one-step problems involving multiplication and division, by calculating the answer using concrete objects, pictorial representations arrays with the support of the teacher
- Through grouping and sharing small quantities, pupils begin to understand, division, and finding simple fractions of objects, numbers and quantities.
- They make connections between arrays, number patterns, and counting in twos, fives and tens.

<u>Year 2</u> Group and share using the \div and = signs. Use objects, Numicon, arrays, pictorial representations and grouping on a This represents 12 + 3, posed as Arrays: how many groups of 3 are in 12? Pupils should also show that the same array can represent 12 + 4 = 3 if grouped horizontally. 24 divided into groups (chunks) of 6 There are 4 groups of 6 in 24 Know and understand sharing and grouping 6 sweets shared between 3 people, how many do each aet? Grouping using a number line Pose 12÷3 as Group from zero in equal jumps to 10 11 12 "How many find 'how many groups of _ in _? groups of 3 are Use bead-bars/strings to make there in 12?"

<u>Key vocabulary</u> share, share equally, one each, two each..., group, equal groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over

 $2 \div 3$

Key Skills for division at Year 2

• Count in steps of 2, 3, and 5 from 0

link to number line.

- 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 x, ÷ and = 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.



<u>Key vocabulary</u> share, share equally, one each, two each..., group, equal groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, short division, 'carry', remainder, multiple

- Recall and use division facts for the 2, 3, 4, 5, 8 and 10 multiplication tables
- Write and calculate mathematical statements for division using the multiplication tables that they know, including for two-digit numbers divided by one digit
- Solve problems, in contexts, and including missing number problems, involving division.
- Pupils develop efficient mental methods, for example, using division facts (e.g. using 3 × 2 = 6, 6 ÷ 3 = 2 and 2 = 6 ÷ 3) to derive related facts (30 × 2 = 60, so 60 ÷ 3 = 20 and 20 = 60 ÷ 3).
- Pupils develop reliable written methods for division, starting with calculations of 2digit numbers by 1-digit numbers using an ENL.
- Halve even numbers up to 50 and multiples of ten to 100
- Perform divisions within the tables including those with remainders, e.g. 38 ÷ 5.



<u>Key vocabulary</u> share, share equally, one each, two each..., group, equal groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, short division, 'carry', remainder, multiple, divisible by, factor

- Use a written method to divide a 2-digit or a 3-digit number by a single-digit number.
- Give remainders as whole numbers.
- Recall multiplication and division facts for all numbers up to 12 x 12.
- Use place value, known and derived facts to multiply and divide mentally, including: multiplying and dividing by 10 and 100 and 1.
- Pupils practise to become fluent in the formal written method of short division with exact answers when dividing by a one-digit number
- Pupils practise mental methods and extend this to three-digit numbers to derive facts, for example 200 × 3 = 600 so 600 ÷ 3 = 200
- Pupils solve two-step problems in contexts, choosing the appropriate operation, working with increasingly harder numbers. This should include correspondence questions such as three cakes shared equally between 10 children.

<u>Year 5</u> Divide up to 4 digits by a single digit including answers with remainders. Short division including remainder answers. Please refer to Y4 or Y3 if necessary to ensure children are confident in the steps towards short division. Division should be given in a real life context, including using money and measures, so that pupils know to round the answer up or down. The answer could be Answers could also be given as expressed as 663 remainders, decimals or fractions. remainder 5 or 663 and 5/8 or as a <u>4</u>7r2 decimal. 6 2 8⁴4 BUT ensure children have a secure understanding of what they are doing and are able Once children's understanding of this method is to use their knowledge of related facts to secure they might shorten their dialogue to: either make a rough estimate first or have "How many 6s in 28?" an idea about whether their final answer is "4 remainder 4" reasonable or not. "How many 6s in 44?"

<u>Key vocabulary</u> share, share equally, one each, two each..., group, equal groups of, lots of, array, divide, divided by, divided into, division, grouping, number line, left, left over, inverse, short division, 'carry', remainder, multiple, divisible by, factor quotient, prime number, prime factors, composite number (non-prime)

Key Skills for division at Year 5

"7 remainder 2"

- Recall multiplication and division facts for all numbers up to 12 x 12 (as in Y4).
- Multiply and divide numbers mentally, drawing upon known facts.

• Identify multiples and factors, including finding all factor pairs of a number, and common factors of two number.

- Solve problems involving multiplication and division where larger numbers are decomposed into their factors.
- Multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.
- Use the vocabulary of prime numbers, prime factors and composite (non-prime) numbers.
- Work out whether a number up to 100 is prime, and recall prime numbers to 19
- 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
- Use multiplication and division as inverses. Interpret non-integer answers to division by expressing
 results in different ways according to the context, including with remainders, as fractions, as decimals or
 by rounding (e.g. 98 ÷ 4 = 24 r 2 = 241/2 = 24.5 ≈ 25).

<u>Year 6</u> Divide at least 4-digit numbers by single and 2-digit numbers (including decimals).

Short division (for dividing by a single digit)



Children should continue to use short division with remainders. They need to learn how to express an answer as a remainder, a fraction or as a decimal as in in this example.

It is important for children to start from real life

problem solving contexts and for them to consider how

Introduce long division by chunking for dividing by 2 digits

| 27 | |
|----------|--|
| 36) 972 | \cap |
| - 720 | 20x |
| 252 | |
| - 252 | 7× |
| 0 | \cup |
| | Ļ |
| Answer : | 27 |
| | 27 36) 972 - <u>720</u> 252 - <u>252</u> 0 Answer : |

Find out 'How many 36s are in 972?' by subtracting 'chunks' of 36, until zero is reached (or until there is a remainder).

Teach pupils to write a 'useful list' first at the side that will help them decide what chunks to use.

Introduce the method in a simple way by limiting the choice of chunks to 'Can we use 10 lots? Can use 100 lots?' As children become confident with the process, encourage more efficient chunks to get to the answer more quickly (e.g. 20x, 5x), and expand on their 'useful' lists.

Teachers must consult division progression methods fin previous years in order to determine valid starting points for children in year 6.

Key vocabulary as previously, & common factor

- Recall and use multiplication and division facts for all numbers to 12 \times 12 for more complex calculations
- 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 short division where appropriate.
- Perform mental calculations, including with mixed operations and large numbers.
- Identify common factors, common multiples and prime numbers.
- Solve problems involving all 4 operations.
- Use estimation to check answers to calculations and determine accuracy, in the context of a problem.
- Use written division methods in cases where the answer has up to two decimal places.
- Solve problems which require answers to be rounded to specified degrees of accuracy.