

# Calculations 1

---

## **Addition up to a total of 10 using pictures to count on**

- use 'add'
- use 'add to'
- use 'plus'
- use the '+' sign
- use 'sum of'
- use 'total'

## **Addition up to a total of 10 using number lines**

- use 'add'
- use 'add to'
- use 'plus'
- use the '+' sign
- use 'sum of'
- use 'total'
- use symbols for unknown numbers

## **Know by heart addition facts**

- know addition facts to 5
- begin to know addition facts to 10
- how many more to make 8?
- pairs of numbers which make 8
- how many more to make 10?
- pairs of numbers which make 10

## **Recognise that addition can be done in any order**

- know addition can be done in any order (1)
- know addition can be done in any order (2)
- add 3 numbers (using pictures to count)
- add 3 numbers (using a number line)

## **Apply addition strategies**

- complete addition questions up to 10 (1)
- complete addition questions up to 10 (2)
- add 9
- addition: crossing 10 with a number line (1)
- addition: crossing 10 with a number line (2)
- addition: crossing 10 with a number line (3)
- add a single digit to a teen
- add a single digit to a teen (crossing 20)

### **More addition strategies**

- add a single digit to 10 with a number line
- add a single digit to 20 with a number line
- add a single digit to 10
- find the number to make 10 with pictures
- find the number to make 10 with a number line
- 3 numbers to make up to 12
- choose 3 numbers to add

### **Subtraction by counting on using pictures**

- use 'take away'
- use 'take from'
- use 'subtract'
- use 'subtract from'
- use 'less than'
- use 'difference'

### **Subtraction by counting on using number lines**

- use 'take away'
- use 'take from'
- use 'subtract'
- use 'subtract from'
- use 'less than'
- use 'difference'
- use 'how many more...?'
- use 'how many less...?'

### **Know by heart subtraction facts**

- take away with numbers up to 5
- subtract with numbers up to 5 (timed)
- complete subtraction number sentences (1)
- complete subtraction number sentences (2)

### **Apply subtraction strategies**

- complete subtraction sentences up to 10 (1)
- complete subtraction sentences up to 10 (2)
- subtract a single digit from 10
- subtract a single digit from a teen
- subtract a single digit from 20
- subtract whole tens
- subtract a multiple of 10 from a 2-digit number

### **Double and halve numbers**

- double small numbers

- halve small numbers
- add by identifying near doubles

### **Understand multiplication**

- combine groups of 2
- understand 'two lots of'
- combine groups of 5
- combine groups of 10

### **Sharing into equal groups**

- share into 2 equal groups

# Calculations 2

---

## Revise addition up to a total of 10 using pictures to count on

- use 'add'
- use 'add to'
- use 'plus'
- use the '+' sign
- use 'sum of'
- use 'total'

## Revise addition up to a total of 10 using number lines

- use 'add'
- use 'add to'
- use 'plus'
- use the '+' sign
- use 'sum of'
- use 'total'
- use symbols for unknown numbers

## Secure knowledge and recall of addition facts

- number facts to 10
- pairs of numbers which make 20
- pairs of tens which total 100 (pence)
- pairs of tens which make 100

## Further knowledge and recall of addition facts

- add 9 to a 2-digit number
- add a single digit to a 2-digit number
- add a single digit to a multiple of 100
- add a 2-digit number to a multiple of 10

## Recognise that addition can be done in any order

- re-arrange sums
- add lists – look for pairs that make 10
- repeat calculations in a different order

## Apply addition strategies

- add single digits, crossing 10
- add a single digit to a teen, crossing 20
- add two multiples of 10
- add 11/19/21 to a 2-digit number

- find a third number to make 100
- find two more numbers to make 100
- find the missing number
- 3 numbers to make 20
- shopping for 3 items

### **Revise subtraction with number lines**

- use 'take away'
- use 'take from'
- use 'subtract'
- use 'subtract from'
- use 'less than'
- use 'difference'
- use 'how much more is..?'
- use the minus sign

### **Secure knowledge and recall of subtraction facts**

- know by heart subtraction facts to 10
- know pairs with a difference of 9
- know pairs with a difference of 10
- subtract pairs of whole tens
- complete written number sentences (1)
- complete written number sentences (2)
- subtract a multiple of 10 from a 2-digit number

### **Apply subtraction strategies**

- subtract 9 from a 2-digit number
- subtract 11 from a 2-digit number
- subtract 19 from a 2-digit number
- subtract 21 from a 2-digit number
- subtract a single digit from a 2-digit number
- subtract a single digit from a multiple of 10
- subtract a single digit crossing 10 or 20
- subtract two multiples of 10 up to 100
- subtract two multiples of 100

### **Understand that subtraction is the reverse of addition**

- check subtraction with addition
- addition as the reverse of subtraction
- subtraction as the reverse of addition

### **Secure knowledge and recall of doubling and halving**

- know doubles of numbers to 10
- know halves of numbers to 20
- add near doubles

## **Understand multiplication**

- use the x sign
- multiplication as repeated addition
- understand an array (2x table)
- understand an array (5x table)

## **Secure knowledge and recall of multiplication facts**

- know 2x table (timed)
- know 2x table (game)
- know 5x table
- know 10x table

## **Further multiplication**

- complete number sentences (1)
- complete number sentences (2)
- double larger numbers
- double multiples of 5

## **Apply division strategies**

- revise sharing equally
- use the division sign
- how many twos make...?
- dividing by 2
- how many tens make...?
- share by 5 with a remainder
- find a remainder using 10x table
- halve multiples of 10

# Calculations 3

---

## Revise addition with related vocabulary

- add numbers up to 20 with a number grid
- add 10 to numbers in the nineties
- add two multiples of 10 crossing 100
- add a 1-digit number to 2-digits

## Secure knowledge and recall of addition facts

- addition facts to 20
- which two numbers have a total of...?
- add 9
- add 11
- pairs of multiples of 5 that make 100
- pairs of multiples of 100 that make 1000

## Further knowledge and recall of addition

- add 1-digit to a 3-digit number
- add 10 to any 2 or 3-digit number
- pairs of 100s that make 1000
- add two multiples of 100 crossing 1000
- make the next multiple of 100
- add 100 to any 3-digit number
- mentally add any pair of 2-digit numbers

## Apply addition strategies

- revise putting larger numbers first
- revise looking for pairs that make 10
- add two teen numbers
- what must I add to ... to make ...?
- symbols to stand for unknown numbers
- add 19
- add 21

## Further addition strategies

- find one or two more numbers to make 200
- find the missing number
- add 3 numbers to make 50
- shopping
- add 2-digits to a multiple of 100
- add 2-digits to a multiple of 10
- add two 2-digit numbers

### **Develop and refine written methods for addition**

- written methods: counting on (1)
- written methods: counting on (2)
- add most significant digit first (1)
- add most significant digit first (2)
- add least significant digit first

### **Revise subtraction with related vocabulary**

- take away 1-digit from 2-digits
- take 1-digit from 2-digits
- 2-digits subtract 1-digit
- subtract 1-digit from 2-digits

### **Secure knowledge and recall of subtraction facts**

- subtraction facts to 20
- subtract two 2-digit numbers
- subtract 10 from any 2 or 3-digit number

### **Further knowledge and recall of subtraction**

- complete number sentences
- find pairs with a difference of 30
- find pairs with a difference of 29
- subtract any pair of 2-digit numbers

### **Apply subtraction strategies**

- use 'less than'
- use 'what is the difference between...?'
- use 'how much more is...?'
- use the minus sign
- subtracting whole tens
- subtracting two multiples of 100
- subtract a multiple of 10 from a multiple of 100

### **Further subtraction strategies**

- subtract 9 from a 3-digit number
- subtract 11 from a 3-digit number
- subtract 19 from a 3-digit number
- subtract 21 from a 3-digit number
- subtract 1-digit from a 3-digit number
- subtract 1-digit from a multiple of 100
- find a small difference
- check subtraction with addition

### **Develop and refine written methods for subtraction**

- written methods: counting up (1)
- written methods: counting up (2)
- written methods: decomposition

### **Secure knowledge of doubling and halving**

- double numbers to 20
- double multiples of 5
- add near doubles
- know doubles to 20
- know halves

### **Understanding of multiplication**

- multiplication as repeated addition
- use arrays to understand 3x table
- use arrays to understand 5x table
- know that multiplication can be done in any order
- begin to develop written methods for multiplication

### **Derive and recall multiplication facts**

- know 2x table
- know 5x table
- know 10x table
- know 3x table
- know 4x table
- begin to multiply by 6
- double fives up to 50
- halve whole tens
- understand the effect of multiplying by 10
- multiply a single digit by 100
- multiply whole tens

### **Apply division strategies**

- share between 3
- how many 5ps make...?
- understand the language of division
- use the division sign
- complete number sentences
- share by 5 with remainders
- find a remainder
- word problems with remainders (rounding down)
- word problems with remainders (rounding up)

### **Find unit fractions of numbers**

- know finding a half is the same as dividing by 2

- know finding a quarter is the same as dividing by 4
- find one fifth

**Relate multiplication and division**

- multiplication and division corresponding
- check division with multiplication

# Calculations 4

---

## Revise addition facts and strategies

- revise 2-digit addition
- understand the vocabulary of addition
- which two numbers have a total of...?
- complete written questions
- shopping
- number pairs that make 100

## Addition of multiples of 10, 100 and 1000

- add two multiples of 100
- add two multiples of 1000
- add a multiple of 10 to a 3-digit number
- add a multiple of 10 to make 1000
- pairs of multiples of 50 that make 1000
- add multiples of 1000
- what must be added to ... to make ...?

## Apply addition strategies

- relate subtraction to addition
- relate addition to subtraction
- relate addition to multiplication
- add several small numbers
- add 3 multiples of 10

## Develop efficient written methods for addition

- add 2-digits to 3-digits
- 3-digit addition: least significant first
- add decimals (1)
- add decimals (2)
- efficient written methods: 2-digits
- efficient written methods: 3-digits

## Revise subtraction facts and strategies

- revise 2-digit subtraction
- understand the vocabulary of subtraction
- complete number sentences (1)
- complete number sentences (2)
- subtract a larger number from a smaller number

## Apply subtraction strategies

- find a difference either side of a multiple of 100
- subtract by counting back in tens
- subtract the nearest multiple of 10 and adjust
- subtract multiples of 100
- subtract 99

### **Further subtraction strategies**

- subtract a single digit from a multiple of 1000
- subtract a single digit from any 3-digit number
- find a small difference either side of a multiple of 1000

### **Develop efficient written methods for subtraction**

- revise subtraction by counting up
- subtraction by compensation
- subtraction by decomposition
- efficient written method for 2-digits
- efficient written method for 3-digits

### **Calculate doubles and derive halves**

- double numbers up to 50
- double multiples of 10
- double multiples of 100
- identify near doubles
- double any multiple of 5 up to 100
- halve multiples of 10 up to 200
- divide by 4 by halving and halving
- halve 2-digit numbers

### **Revise understanding of multiplication**

- multiplication as repeated addition
- multiplication as the inverse of division
- multiply by 1 or 0
- find the product
- multiplication and addition

### **Know tables by heart**

- 6x table
- 7x table
- 8x table
- 9x table
- 10x table
- multiply by 9, 10 or 11
- recognise multiples of 9

### **Further multiplication strategies**

- multiply 2-digits by 9
- multiply 2-digits by 11
- multiply by 4 by doubling twice
- multiply by 5 by multiplying by 10 and halving
- multiply by 20 by multiplying by 10 and doubling
- recognise multiples of 9

### **Develop and refine written methods for multiplication**

- develop written methods (1)
- develop written methods (2)
- develop written methods: most significant digit first
- develop written methods: least significant digit first

### **Revise understanding of division**

- understand the vocabulary of division
- know finding a half is the same as dividing by 2
- know finding a quarter is the same as dividing by 4
- divide by 10
- divide by 100
- relate division to multiplication

### **Understand remainders**

- give a remainder as a whole number (1)
- give a remainder as a whole number (2)
- round down after division
- round up after division
- round to the nearest whole 100

### **Derive division facts**

- divide by 6
- divide by 7
- divide by 8
- divide by 9
- divide by 10
- divide by 11

### **Begin to find fractions of numbers**

- find one fifth
- find one tenth
- find fifths
- find tenths
- pairs of fractions which total 1
- find three quarters
- find one hundredth

### **Develop and refine written methods for division**

- develop written methods (1)
- develop written methods (2)

### **Checking answers**

- relationship between halving and doubling
- relationship between doubling and halving
- approximate by rounding

### **Use a calculator**

- Single step calculations
- multiply decimals
- subtraction and negative numbers
- convert to pence
- 2-step calculations

### **Tables challenge**

- all tables

# Calculations 5

---

## Revise addition facts and strategies

- revise 2-digit numbers that total 100
- revise adding 9
- revise 2-digit addition
- understand the vocabulary of addition
- which two numbers have a total of...?
- revise addition of decimals

## Addition of multiples of 10 and 100

- add two multiples of 100
- add a 3-digit multiple of 10 to a 3-digit number
- add a multiple of 10 to make 1000
- pairs of multiples of 50 that make 1000
- add 3 multiples of 100

## Apply addition strategies

- add three small numbers
- add four small numbers
- add the nearest multiple of 10 and adjust
- relate addition and multiplication

## Efficient written methods for addition

- adding decimals
- efficient written method: adding 2-digits
- efficient written method: adding 3-digits
- efficient written method: adding money

## Revise subtraction facts and strategies

- revise 2-digit subtraction
- understand the vocabulary of subtraction
- subtract a larger number from a smaller number
- subtract multiples of 100
- subtract 3-digit multiples of 10
- subtract 99

## Use knowledge to derive differences

- find a difference by counting up
- find a difference either side of a multiple of 1000
- find a difference (1)
- find a difference (2)

- subtract the nearest multiple of 10 and adjust
- subtract decimals

### **Efficient written methods for subtraction**

- efficient written method: 2-digits
- efficient written method: 3-digits
- efficient written method: money

### **Addition and subtraction of decimals**

- decimals that total 1
- identify near doubles with decimals
- add a pair of decimal fractions
- subtract a pair of decimal fractions
- add a decimal to a whole number

### **Calculate doubles and halves**

- double multiples of 10
- double multiples of 100
- halve multiples of 10
- double a decimal fraction
- halve a decimal fraction

### **Revise understanding of multiplication**

- start to use brackets
- use the vocabulary of multiplication
- multiply 2-digit multiples of 10 by 6, 7, 8 or 9
- multiply by 0.5
- find products

### **Know multiplication facts and factors**

- know tables
- respond rapidly to written questions
- find pairs of factors of 24
- revise multiplying by 100
- multiply a multiple of 10 by a multiple of 100
- factors of 100

### **Further multiplication strategies**

- multiply 2-digits by 9
- multiply 2-digits by 11
- multiply 2-digits by 12
- multiply 2-digits by 21
- multiply 2-digits by 19
- multiply a 2-digit number by a 1-digit number

### **Use knowledge of multiplication**

- multiplying by 4 by doubling twice
- multiply by 5 by multiplying by 10 and halving
- multiply by 50 by multiplying by 100 and halving
- 16x table by doubling 8x table
- find  $\frac{1}{6}$  by finding  $\frac{1}{3}$  and halving
- recognise multiples of 6

### **Refine efficient written methods for multiplication**

- written multiplication HTU x U
- written multiplication TU x TU
- develop written methods for decimals
- written multiplication: decimals

### **Revise understanding of division**

- understand the vocabulary of division
- give a remainder as a fraction
- division as a fraction
- relate division and fractions
- divide a 4-digit multiple of 100 by 100
- divide a 2-digit number by 10

### **Division and remainders**

- give a remainder as a whole number
- give a quotient as a decimal fraction
- rounding up or down
- rounding to the nearest whole one

### **Find fractions and percentages**

- finding unit fractions
- finding fifths finding tenths
- finding fractions
- pairs of fractions which make 1
- finding percentages
- finding 25%

### **Refine efficient written methods for division**

- written methods of division (1)
- written methods of division (2)
- written methods of division (3)

### **Checking answers**

- relate subtraction and addition (1)

- relate subtraction and addition (2)
- relate addition and subtraction
- estimating addition
- estimating multiplication
- odd and even numbers

### **Use a calculator**

- complete addition questions
- complete subtraction questions
- multiply decimals
- solve written problems
- consecutive numbers
- negative numbers
- converting metres to centimetres
- 2-step calculations

### **Tables challenge**

- all tables

# Calculations 6

---

## **Revise addition facts and strategies**

- revise 2-digit addition
- understand the vocabulary of addition
- which two numbers have a total of...?
- add 3 multiples of 10
- add multiples of 1000

## **Know and apply addition facts**

- revise 2-digit pairs that total 100
- revise decimals that total 1
- pairs of multiples of 50 that total 1000
- double multiples of 10 up to 1000
- double multiples of 100 up to 10000

## **Revise subtraction facts and strategies**

- revise 2-digit subtraction
- understand the vocabulary of subtraction
- subtract a larger number from a smaller number
- subtract multiples of 100
- subtract 4-digit multiples of 100
- subtract 999

## **Know and apply subtraction facts**

- revise: find a difference by counting up
- find a difference either side of a multiple of 1000
- find a difference
- subtract the nearest multiple of 10 and adjust
- subtract decimals

## **Further addition and subtraction**

- add 3 multiples of 1000
- subtract multiples of 100
- add 4-digit multiples of 100
- pairs that make multiples of 1000
- subtract 4-digit multiples of 100

## **Revise addition and subtraction of decimals**

- decimals that total 0.1
- add decimals: tenths and hundredths
- subtract decimals: tenths and hundredths

- add a pair of decimal fractions
- subtract a pair of decimal fractions

### **Efficient written methods for addition**

- efficient written methods: HTU
- efficient written methods: ThHTU
- efficient written methods: decimals

### **Efficient written methods for subtraction**

- efficient written methods: TU
- efficient written methods: HTU
- efficient written methods: decimals
- efficient written methods: crossing to hundreds

### **Revise understanding of multiplication**

- revise using brackets
- revise using the vocabulary of multiplication
- multiply two 2-digit multiples of 10
- multiply by tenths
- find products
- use brackets

### **Know multiplication facts**

- know tables
- respond rapidly to written questions
- know by heart square numbers
- find squares of multiples of 10
- multiply by 1000

### **Use knowledge of multiplication to derive further facts**

- multiply 2-digits by 51
- multiply 2-digits by 49
- multiply 2-digits by 101
- multiply 2-digits by 99
- multiply a whole number and tenths by a single digit
- recognise multiples of 25

### **Further multiplication strategies**

- multiply by 16
- multiply by 24
- multiply by 15
- multiply a decimal fraction by 10
- multiply a decimal fraction by 10
- double fractions

- recognise multiples of 12

### **Efficient written methods for multiplication**

- written multiplication HTU x U
- written multiplication ThHTU x U
- written multiplication TU x TU
- written methods: decimals
- written methods: money

### **Revise understanding of division**

- revise using the vocabulary of division
- dividing decimal fractions
- relate division and fractions
- divide by 1000
- remainders when dividing by 12

### **Factors and prime numbers**

- recognise factors
- recognise prime numbers
- factors of 24
- factors of 48

### **Division and remainders**

- revise: give a remainder as a whole number
- revise: give a remainder as a fraction
- revise: give a quotient as a decimal fraction
- round to the nearest whole number
- rounding up and rounding down
- rounding to the nearest whole one

### **Find fractions and percentages**

- finding unit fractions
- finding sixths
- finding tenths
- finding fractions
- pairs of fractions which make 1
- finding percentages
- find 25%
- find 1%

### **Refine efficient written methods for division**

- written methods of division (1)
- written methods of division (2)

- written methods of division (3)
- written methods of division (4)
- written methods of division (5)

### **Checking answers**

- relate addition and subtraction
- estimate 2-digit multiplication
- tests of divisibility (1)
- tests of divisibility (2)
- numbers divisible by 9
- odd and even numbers

### **Use a calculator**

- calculator decimal questions
- develop calculator skills
- consecutive numbers (1)
- consecutive numbers (2)
- find percentages
- 2-step calculations
- negative numbers

### **Use a calculator to convert units**

- convert metres to centimetres
- convert metres to millimetres
- convert hours and minutes to minutes
- convert minutes to hours and minutes

### **Tables challenge**

- All tables