Christ Church, Church of England (VC) Primary School

Aspire, celebrate and learn in an inclusive community

NATIONAL CURRICULUM 2014

A parent's guide to Year 4 Maths
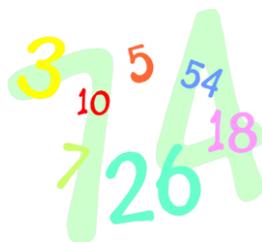
By the end of Year 4 most children should be able to…

Learning objectives	Success criteria
1. Add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.	*I can add and subtract numbers with up to 4 digits using written methods (for example, using column addition and subtraction).*
2. Estimate and use inverse operations to check answers to a calculation.	*I can estimate an answer and check my answer using inverse operations.*
3. Solve addition and subtraction two-step problems in contexts, deciding which operations and methods to use and why.	*I can solve longer addition and subtraction problems and explain all the steps I took and why I worked things out as I did.*
4. Recognise and show, using diagrams, families of common equivalent fractions.	*I can show in drawings why a number of fractions equal each other (such as 3/5 and 6/10) and are called equivalent fractions.*
5. Count up and down in hundredths; recognise that hundredths arise when dividing an object by one hundred and dividing tenths by ten.	*I can count up and down in hundredths and know that a hundredth is made by dividing an object by one hundred and a tenth is made by dividing an object by ten.*
6. Solve problems involving increasingly harder fractions to calculate quantities, and fractions to divide quantities, including non-unit fractions where the answer is a whole number.	*I can work out the fractions of numbers such as 4/5 of 25 or 7/10 of 700.*
7. Add and subtract fractions with the same denominator.	*I can add and subtract fractions with the same denominator.*
8. Recognise and write decimal equivalents of any number of tenths or hundredths.	*I can tell you the decimal equivalents of any number of tenths or hundredths - such as 1/10 = 0.1 and 23/100 = 0.23.*
9. Recognise and write decimal equivalents to 1/4, 1/2, 3/4.	*I know what the decimal equivalents are for 1/4, 1/2 and 3/4.*
10. Find the effect of dividing a one- or two-digit number by 10 and 100, identifying the value of the digits in the answer as ones, tenths and hundredths.	*I can divide a one- or two-digit number by 10 and 100 and I know what the tenths and hundredths mean after the decimal point.*
11. Round decimals with one decimal place to the nearest whole number.	*I can round decimals with one decimal place to the nearest whole number.*
12. Compare numbers with the same number of decimal places up to two decimal places.	*I can compare numbers such as 0.26 and 0.56 to say which is bigger or lower.*
13. Solve simple measure and money problems involving fractions and decimals to two decimal places.	*I can solve measure and money problems involving fractions and decimals to two decimal places.*
14. Convert between different units of measure [for example, kilometre to metre; hour to minute].	*I can convert one unit of measurement to another, such as kilometre to metre, hour to minute and cm to mm.*
15. Measure and calculate the perimeter of a rectilinear figure (including squares) in centimetres and metres.	*I can measure and calculate the perimeter of a rectangle (including a square).*
16. Find the area of rectilinear shapes by counting squares.	*I can find the area of a rectangular shape by counting the number of squares the shape takes up.*
17. Estimate, compare and calculate different measures, including money in pounds and pence.	*I can estimate and compare the measurements of a range of measures (such as cm, km, g, litres) and money.*
18. Read, write and convert time between analogue and digital 12- and 24-hour clocks.	*I can read, write and convert time between clocks with hands (analogue clocks) and digital 12- and 24-hour clocks.*
19. Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.	*I can convert hours to minutes, minutes to seconds, years to months and weeks to days.*
20. Recall multiplication and division facts for multiplication tables up to 12 × 12.	*I know all my times table up to the 12 times tables.*
21. Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1.	*I know what the outcome is when I multiply a number by 1 or by zero.*
22. Use place value, known and derived facts to multiply	*I know what the outcome is when I divide a number by 1.*

and divide mentally, including: Dividing by 1.	
23. Use place value, known and derived facts to multiply and divide mentally, including: multiplying together three numbers.	*I can multiply three numbers together, such as 3 x 6 x 9.*
24. Recognise and use factor pairs and commutativity in mental calculations.	*I know what factor pairs are how I can multiply numbers in any order and use my knowledge to work out questions in my head.*
25. Multiply two-digit and three-digit numbers by a one-digit number using formal written layout.	*I can multiply a two-digit or a three-digit number by a one-digit number using written methods.*
26. Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects.	*I can solve maths problems such as - how many different outfits can I make from 3 hats and 4 coats.*
27. Count in multiples of 6, 7, 9, 25 and 1000.	*I can count in multiples of 6, 7, 9, 25 and 1000.*
28. Find 1000 more or less than a given number.	*I can find 1000 more or less than a given number.*
29. Count backwards through zero to include negative numbers.	*I can count backwards to negative numbers below zero.*
30. Recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones).	*I know what each digit means in Thousands, Hundreds Tens and Unit numbers such as 2024.*
31. Order and compare numbers beyond 1000.	*I can order and compare numbers above 1000.*
32. Identify, represent and estimate numbers using different representations.	*I can makes estimates of a range of things - such as how many small objects there are in a large jar, how long in cm an object is, how heavy an object may weigh in kg.*
33. Round any number to the nearest 10, 100 or 1000.	*I can round a number to the nearest 10, 100 or 1000.*
34. Solve number and practical problems that involve rounding, ordering and exploring negative numbers and with increasingly large positive numbers.	*I can solve number and practical problems that involve rounding, ordering and exploring negative numbers and with increasingly large positive numbers.*
35. Read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.	*I can read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero and place value.*
36. Describe positions on a 2-D grid as coordinates in the first quadrant.	*I can find the coordinates of a point on a grid.*
37. Describe movements between positions as translations of a given unit to the left/right and up/down.	*I can move (translate) a point on a grid by a given set of jumps either up/down or left/right.*
38. Plot specified points and draw sides to complete a given polygon.	*I can plot points using coordinates and join up the points to create a shape.*
39. Compare and classify geometric shapes, including quadrilaterals and triangles, based on their properties and sizes.	*I can group 2-D shapes based on their properties (such as the number of sides) and sizes.*
40. Identify acute and obtuse angles and compare and order angles up to two right angles by size.	*I can find acute and obtuse angles and order a set of given angles by size.*
41. Identify lines of symmetry in 2-D shapes presented in different orientations.	*I can find all the lines of symmetry in 2-D shapes.*
42. Complete a simple symmetric figure with respect to a specific line of symmetry.	*If I have been given one half of a symmetrical shape, I can complete the other half based on the position of the line of symmetry.*
43. Interpret and present discrete and continuous data using appropriate graphical methods, including bar charts and time graphs.	*I can take continuous and discrete data and create a bar chart or time graph.*
44. Solve comparison, sum and difference problems using information presented in bar charts, pictograms, tables and other graphs.	*I can solve comparison, sum and difference problems using information in bar charts, pictograms, tables and other graphs.*

Strategies my child will be learning throughout the year

Multiplication

We consolidated the understanding of multiplication using the grid method

43 x 6 = 258

x	40	3
6	240	18

240 + 18 = 258

Some children progressed to 3-digit x 1-digit:

564 x 3 = 1692

x	500	60	4
3	1500	180	12

1500 + 180 + 12 = 1692

When children are ready they move onto :

Long multiplication
2-digit by 1-digit only

```
   43
 x  6
   18   ( 3 x 6)
  240   (40 x 6)
  258
```

The next step is:

Short multiplication
2-digit by 1-digit and
3-digit by 1-digit

```
   43
 x  6
  258
    1
```

```
  243
 x   5
 1215
  2 1
```

Times tables skills are fundamental to developing confidence with multiplication. Please keep practising .

Division

We consolidate the understanding of division and introduce the bus stop method

$$3\overline{)39} = 13$$

progressing to

$$7\overline{)9\ 8} = 1\ 4$$

Answer: 14

Moving onto

432 ÷ 5 becomes

$$5\overline{)4\ 3\ 2} = 8\ 6\ r\ 2$$

Answer: 86 remainder 2

Addition

We continue on from the work done in year 3 the column method using place value columns and counters:

34 + 45 = 79

T	U
●●●	●●●●
●●●●	●●●●●
70	9
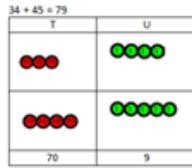
We reinforce expanded column addition:

3462 + 2675 becomes

$$+ \begin{array}{l} 3000 + 400 + 60 + 2 \\ \underline{2000 + 600 + 70 + 5} \\ 5000 + 1000 + 130 + 7 = 6137 \end{array}$$

We progress children to contracted column addition:

3462 + 2675 becomes

$$\begin{array}{r} 3462 \\ + \underline{2675} \\ 6137 \\ {\scriptstyle 1\ 1} \end{array}$$

Subtraction

We continue on from the work done in year 3 the column method using place value columns and counters:

68 - 26 = 42

T	U
●	●
40	2
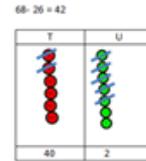
Exchange tens for units where necessary.

Reinforcing expanded column subtraction and then children progress to contracted column addition where no exchange is needed:

368 − 245 = 123

$$- \begin{array}{l} 300 + 60 + 8 \\ \underline{200 + 40 + 5} \\ 100 + 20 + 3 = 123 \end{array}$$

Some children progressed to expanded then contracted column subtraction with exchange:

874 – 523 becomes

$$\begin{array}{r} 8\ 7\ 4 \\ -\ 5\ 2\ 3 \\ \hline 3\ 5\ 1 \end{array}$$

Answer: 351

932 – 457 becomes

$$\begin{array}{r} {\scriptstyle 8\ 12\ 1} \\ 9\ 3\ 2 \\ -\ 4\ 5\ 7 \\ \hline 4\ 7\ 5 \end{array}$$

Answer: 475

Games to support your child at home with maths

Decimal number plates

♦ Each choose a car number plate with three digits.

> **P645 CJM**

♦ Choose two of the digits, e.g. 4 and 6. Make the smallest and largest numbers you can, each with 1 decimal places, e.g. 4.6 and 6.4.
♦ Now find the difference between the two decimal numbers, e.g. 6.4 – 4.6 = 1.8.
♦ Whoever makes the biggest difference scores 10 points.
♦ The person with the most points wins.

Play the game again, but this time score 10 points for the smallest difference, or 10 points for the biggest total.

Finding areas and perimeters

> *Perimeter = distance around the edge of a shape*
> *Area of a rectangle = length x breadth (width)*

♦ Collect 5 or 6 used envelopes of different sizes.
♦ Ask your child to estimate the perimeter of each one to the nearest centimetre. Write the estimate on the back.
♦ Now measure. Write the estimate next to the measurement.
♦ How close did your child get?
♦ Now estimate then work out the area of each envelope.
♦ Were perimeters or areas easier to estimate? Why?

You could do something similar using an old newspaper, e.g.
♦ Work out which page has the biggest area used for photographs.
♦ Choose a page and work out the total area of news stories or adverts on that page.

Car numbers

- Try reading a car number as a measurement in centimetres, then converting it to metres, e.g. 456cm, which is 4.56m, or 4m and 56cm.
- Try this with car numbers that have zeros in them, e.g. 307cm, which is 3.07m or 3m and 7cm; 370cm, which is 3.7m, or 3m and 70cm. These are harder!
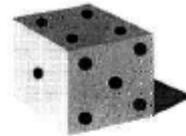
Dicey subtractions

- Take turns to roll a dice twice.
- Fill in the missing boxes.

400☐ - 399☐

e.g.   4002 – 3994

- Count on from the smaller to the larger number, e.g 3995, 3996, 3997, 3998, 3999, 4000, 4001, 4002.
- You counted on 8, so you score 8 points.
- Keep a running total of your score.

The first to get 50 or more points wins.

## Target 1000

- Roll a dice 6 times.
- Use the six digits to make two three-digit numbers.
- Add the two numbers together.
- How close to 1000 can you get?
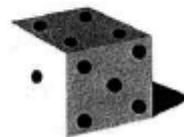
Car numbers

- Choose a car number.
- You may add or subtract 10, 20, 30, 40, 50, 60, 70, 80 or 90.
- Try to get as close as possible to 555.
- Who can get closest during a week?
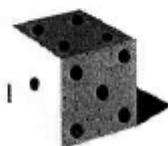
Times tables

Ask your child a different times-table fact every day,

e.g.   *What is 6 times 8? Can you use this to work out 12 x 8?*

and: *What is 48 divided by 6?*

Measuring

Use a tape measure that shows centimetres.

♦ Take turns measuring lengths of different objects, e.g. the length of a sofa, the width of a table, the length of the bath, the height of a door.

♦ Record the measurement in centimetres, or metres and centimetres if it is more than a metre, e.g. if the bath is 165 cm long, you could say it is 1m 65cm (or 1.65m).

♦ Write all the measurements in order.
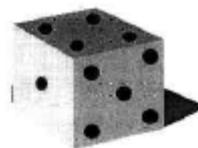
Dicey tens

For this game you need a 1–100 square (a snakes and ladders board will do), 20 counters or coins, and a dice.

♦ Take turns.

♦ Choose a two-digit number on the board e.g. 24.

♦ Roll the dice. If you roll a 6, miss that turn.

♦ Multiply the dice number by 10, e.g. if you roll a 4, it becomes 40.

♦ Either add or subtract this number to or from your two-digit number on the board, e.g. 24 + 40 = 64.

♦ If you are right, put a coin on the answer.

The first to get 10 coins on the board wins.

Dicey division

You each need a piece of paper. Each of you should choose five numbers from the list below and write them on your paper.

5   6   8   9   12   15   20   30   40   50

- ♦ Take turns to roll a dice. If the number you roll divides exactly into one of your numbers, then cross it out, e.g. you roll a 4, it goes into 8, cross out 8.
- ♦ If you roll a 1, miss that go. If you roll a 6 have an extra go.
- ♦ The first to cross out all five of their numbers wins.

Left overs

- ♦ Take turns to choose a two-digit number less than 50.
- ♦ Write it down. Now count up to it in fours. What number is left over?
- ♦ The number left is the number of points you score, e.g.

  > Choose 27.
  > Count: *4, 8, 12, 16, 20, 24.*
  > 3 left over to get to 27.
  > So you score 3 points.

- ♦ The first person to get 12 or more points wins.

Now try the same game counting in threes, or in fives.
Can you spot which numbers will score you points?

4 8 12 16 20 24 28 32 36 40

All the sixes

Time your child while he / she does one or more of these.

- ♦ Count in sixes to 60.
- ♦ Count back in sixes from 60 to zero.
- ♦ Start with 4. Count on in sixes to 70.
- ♦ Start with 69. Count back in sixes to 3.

Next week, try to beat the record.

6 12 18 24 30 36 42