Christ Church CE School
Calculation Policy
Autumn 2016

Christ Church
CE Primary School
Regents Park
NW1 4BD

Christ Church C of E Primary School
Calculation Policy

CONTENTS

Mission Statement
Our School Aims
Rationale
Progression through calculation
Mental methods
Written methods for addition
Written methods for subtraction
Written methods for multiplication
Written methods for division
Multiplication facts
Monitoring and review
Appendices
- Written method for long division

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Mission Statement

The Christian Faith is at the heart of our school community. At Christ Church we care for each other and learn together.

Christ Church is a small, caring school which is committed to a broad, balanced curriculum and to a continual raising of standards. We aim to contribute to the spiritual, moral, cultural, mental and physical needs of every individual.

We are a Church of England school, with a strong commitment to the teaching of Christianity whilst supporting a multi-faith approach to the curriculum. We recognise, value and celebrate the rich cultural diversity that exists in our school.

The Christian ethos of the school is reflected in our positive, disciplined and calm atmosphere. We believe that effective learning takes place when children work in a purposeful and stimulating environment that supports a wide range of learning styles. Mutual respect between adults and children promotes excellent behaviour and well developed social skills. With this approach we seek to achieve high academic standards.

We aim to cater for each individual, taking particular account of any specific needs or abilities. We endeavour to ensure that all our children fulfil their potential and, within this context, we emphasise health and safety, enjoyment and achievement and the beginnings of responsibility for themselves and others. These skills will be carried forward to the next phase of education and throughout life.

The whole school community is committed to a collective responsibility for the implementation of the values inherent in this statement.

Our School Aims - **Every Child Matters**

The Ethos of the School

The school aims to provide a positive, disciplined, purposeful environment, within a Christian context. We aim to teach children to be caring, to exhibit good behaviour and appropriate social skills and to begin to take responsibility for themselves and others.

The Values of the School

The School aims to value every child and to contribute to the Spiritual, Moral, Cultural, Mental and Physical well being of our whole school community. We value the diversity of our community and we aim to promote the health and safety of everyone.

The Standards of the School

The School aims to teach a balanced Curriculum and to ensure that each child fulfils his or her potential. We aim to provide teaching and learning of a high standard. We believe that this is achieved when pupils are highly motivated, enjoy coming to school, and are appropriately challenged.

Christ Church C of E Primary School

Calculation Policy

Date of policy: Autumn 2016
Review date: Autumn 2018

RATIONALE

Our purposes for developing a written policy for calculation are:

- To raise the standards of mathematics throughout the school;
- To enable us to have a unified and consistent approach to the teaching of mathematics throughout the school, clearly building on the previous stage of mathematical understanding;
- To assist teachers in planning and implementing activities for the children appropriate to their stage of development throughout the school;
- To enable children to select and use methods of their choice which are most appropriate and effective for a given task

PROGRESSION THROUGH CALCULATION

This policy sets out mental and written methods for the four main operations:

- Addition
- Subtraction
- Multiplication
- Division

Whichever operation is being taught, it is expected that children will work though the following stages in order to increase their understanding and underlying knowledge of place value and number facts:

1. Using real objects
2. Using pictures and diagrams
3. Using an expanded written method
4. Using a compact written method

MENTAL METHODS

- Children should always be encouraged to use a mental method for calculation before attempting a written method. Mental methods can often be quicker and more accurate for certain calculations and by having a wide range of both mental and written methods at their disposal, children will become more effective at selecting the most efficient method for a given problem. As such, mental methods for each operation are set out at the beginning of each section.

ADDITION

Mental strategies and prior understanding for addition

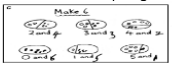
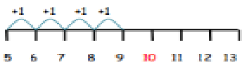
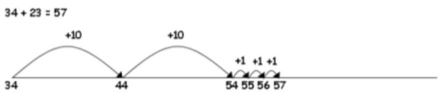
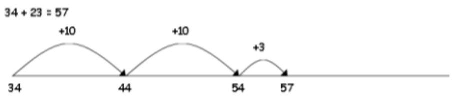
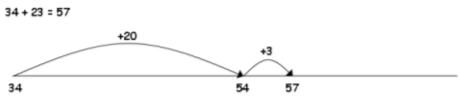
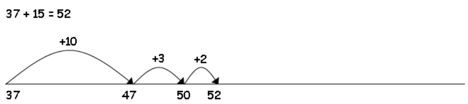
The knowledge, understanding and strategies which children should know and be able to utilise before attempting written strategies include:

- An understanding that addition *usually* results in a larger answer
- Mental recall of number bonds, initially to 10 and then to higher and more challenging numbers (e.g. 20, 100, 1)
    - E.g. 1+9, 2+8, 3+7…
      10+90, 20+80, 30+70…
- Mental recall of all doubles to 10, and later to 20
    - E.g. 1+1, 2+2, 3+3…
- Mental recall of addition facts for all single digits
    - E.g. 1+2, 4+6, 8+3…
- An ability to count forward in 1s, 2s, 5s, 10s and 100s
- Understanding place value within numbers and being able to partition any number
    - E.g. knowing that 674 = 600 (6 hundreds) + 70 (7 tens) + 4 (4 units/ones)
- Being able to add multiples of 10 (such as 60 + 70) or of 100 (such as 600 + 700) using the related addition fact, 6 + 7, and their knowledge of place value
- An understanding that addition can take place in any order
    - E.g. 23 + 45 + 11 = 45 + 11 + 23
- An awareness that it is important to start with the largest number first as this involves less counting on

Note: This list is not given in a progressive order. It is important that children's mental methods of calculation are regularly practised and secured alongside their learning and use of efficient written methods for addition, consolidating earlier-used strategies and knowledge when necessary.

Addition – written/formal methods

	Methods and strategies	Notes on introduction
Stage 1 **One more using concrete materials**	• Count sets of objects reliably • Add two or more groups of objects together to find a total of less than 10. These may be concrete apparatus or pictures. • Talk through counting on fingers • Count on one digit from a given number • Extend to more than one number using concrete material if children are ready • Use informal recording e.g pictures of what they have done.	EYFS

<u>Stage 2</u> **Number line**	• Continue developing ways of recording calculations using pictures.  • Use number lines to support calculation and teachers demonstrate the use of the number line. • Begin by using the number line moving forward one number at a time. • Begin at the largest number and then jump one number at a time. E.g. 5 + 4 =  • Once children are able and confident to do that independently, then extend them to simply doing 1 jump of 4.	Introduced by end of Year 1
<u>Stage 3</u> **Empty number line**	NOTE-Before children can begin to use an empty number line, they need to have had lots of experience of counting on and back using numbered lines and partly numbered lines. Children will begin to use 'empty number lines' themselves starting with the larger number and counting on. ✓ First counting on in tens and ones.  ✓ Then helping children to become more efficient by adding the units in one jump (by using the known fact 4 + 3 = 7).  ✓ Followed by adding the tens in one jump and the units in one jump.  ✓ Bridging through ten can help children become more efficient.  	Introduced by end of Year 2, consolidated throughout Year 3 and later years
<u>Stage 4</u> **Partitioning using informal jottings**	Numbers are partitioned and then steps are recorded to add then tens and then units: **47 + 72 → 40 + 70 = 110** **7 + 2 = 9** **= 110 + 9** **= 119**	Introduced by end of Year 2, revisited throughout later years (particularly for mental addition)
<u>Stage 5</u> **Partitioning vertically (expanded column method)**	Partitioned numbers are then written vertically under one another in their PV columns: 67 = 60 + 7 + 48 = 40 + 8 100 + 15 = 115	Introduced by end of Year 3
<u>Stage 6</u> **Standard written method – columnar addition**	Carry digits are recorded <u>below</u> the line, using the words 'carry ten' or 'carry one hundred', not 'carry one'. Close attention is paid to lining up of digits (and the decimal) according to place value, particularly when the numbers used are of differing numbers of digits. 485 + 78 = 563 (carry 1 1) 67.50 + 37.82 = 105.32 (carry 1 1) $\begin{array}{r} 485 \\ +\ \ 78 \\ \hline 563 \\ {\scriptstyle 1\,1} \end{array} \qquad \begin{array}{r} 67.50 \\ +\ 37.82 \\ \hline 105.32 \\ {\scriptstyle 1\,1\ \ \ } \end{array}$	Introduced by end of Year 3, revisited in all later year groups ***National curriculum addition expectations:*** ***Year 3 – up to 3 digits*** ***Year 4 – up to 4 digits*** ***Year 5+ – add whole numbers and decimals using more than 4 digits***

SUBTRACTION

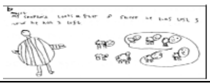
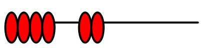
Mental strategies and prior understanding for subtraction

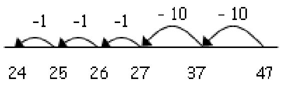
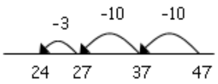
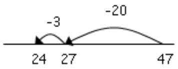
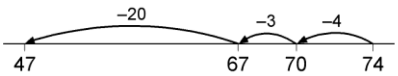
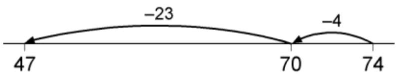
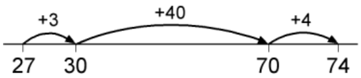
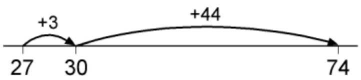
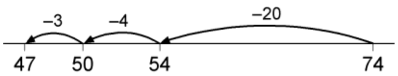
The knowledge, understanding and strategies which children should know and be able to utilise before attempting written methods include:

- An understanding that subtraction *usually* results in a smaller answer
- An understanding that subtraction can be seen as 'taking away' or 'finding the difference' – numbers can be subtracted by 'counting on' rather than back
- An awareness of the inverse relationship between addition and subtraction
  - E.g. If 23 + 14 = 37, then 37 – 14 = 23 and 37 – 23 = 14
- Mental recall of number bonds, initially to 10 and then to higher and more challenging numbers (e.g. 20, 100, 1), complete with inverse pairs
  - E.g. 10-1, 10-2, 10-3
100-23, 100-56
- An ability to count forward and backwards in 1s, 2s, 5s, 10s and 100s
- Understanding place value within numbers and being able to partition any number
  - E.g. knowing that 674 = 600 (6 hundreds) + 70 (7 tens) + 4 (4 units/ones)
- An understanding that subtraction cannot take place in any order
  - E.g. 9-4 is not the same as 4-9

Note: This list is not given in a progressive order. It is important that children's mental methods of calculation are regularly practised and secured alongside their learning and use of efficient written methods for subtraction, consolidating earlier-used strategies and knowledge when necessary.

Subtraction – written/formal methods

	Methods and strategies	**Notes on introduction**
Stage 1 **Counting on and back**	• Counting back from a larger number • One less, two less • Find the difference by counting up - important to use visual images 	EYFS
Stage 2 **Number line**	Counting back using a number line. Finding the difference between two numbers using the number line to assist 'how many numbers between' They use number lines and practical resources to support calculation. Teachers *demonstrate* the use of the number line. Bead strings or bead bars can be used to illustrate subtraction as taking away.  6-2=4 The number line should also be used to show that 6 - 3 means the 'difference between 6 and 3' or 'the difference between 3 and 6' and how many jumps they are apart.	Introduced by end of Year 1
Stage 3 **Empty number line**	Children will begin to use empty number lines to support calculations. **Counting back:**	**Introduced by end of Year 2**

	✓ **First counting back in tens and ones.** 47 – 23 = 24  **- Then helping children to become more efficient by subtracting the units in one jump (by using the known fact 7 – 3 = 4).** 47 – 23 = 24  **- Subtracting the tens in one jump and the units in one jump.** 47 – 23 = 24  The steps may be recorded in a different order, particularly when bridging through 10.  Children need to be able to partition numbers in ways other than into tens and ones to help them make multiples of ten by adding in steps. 	
<u>Stage 4</u> **Counting on method**	 or: 	Introduced by end of Year 2, particularly revisited in Year 3
<u>Stage 5</u> **Partitioning using informal jottings**	Subtraction can be recorded using partitioning: 74 – 27 = 74 – 20 – 7 = 54 – 7 = 47 This requires children to subtract a single-digit number or a multiple of 10 from a two-digit number mentally. The method of recording links to counting back on the number line. 	Introduced by end of Year 3
<u>Stage 6</u> **Partitioning vertically** (**expanded column method)**	Partitioned numbers are then written under one another. E.g. 74 – 39: 70 + 4 - 30 + 9 → 60 14 ~~70~~ + ~~4~~ - 30 + 9 30 + 5 = 35 Practical apparatus should be used when teaching stealing/taking and exchanging (e.g. Base 10) The expanded method leads children to the more compact method so that they understand its structure and efficiency. The amount of time that should be spent teaching and practising the expanded method will depend on how secure the children are in their recall of number facts and in their understanding of place value.	Introduced by end of Year 4
<u>Stage 7</u> **Standard written method – columnar subtraction**	- Use 'steal' or 'take' to describe movement of tens/hundreds into later columns, not 'borrow' - 'Stolen' digits are recorded <u>above</u> the calculation, using the words 'steal ten' or 'steal one hundred', not 'steal one'. - Always begin with examples where no 'stealing' is necessary. - Close attention is paid to lining up of digits (and the decimal) according to place value, particularly when the numbers used consist of differing numbers of digits. 679 - 47 = 632 6 6~~7~~ 12 - 4 7 = 6 2 5 5 11 ~~6~~ ~~2~~ 12 - 4 7 = 5 7 5	Introduced by end of Year 4, revisited in all later year groups ***National curriculum subtraction expectations:*** ***Year 3 – up to 3 digits*** ***Year 4 – up to 4 digits*** ***Year 5+ – subtract whole numbers and decimals using more than 4 digits***

MULTIPLICATION

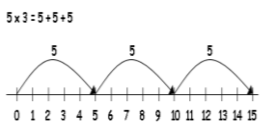
Mental strategies and prior understanding for multiplication

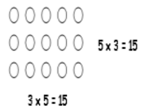
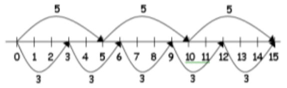
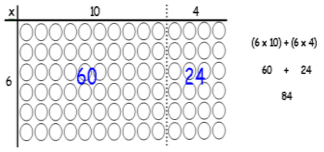
The knowledge, understanding and strategies which children should know and be able to utilise before attempting written strategies include:

- An understanding that multiplication *usually* results in a larger answer
- Recognition of and the ability to recite/say simple sequences of numbers
    - E.g. 5, 10, 15, 20
- Mental recall of all multiplication facts up to 12x12 (by Year 4) and the associated division facts (see later section on 'Multiplication facts')
- Understanding place value within numbers and being able to partition any number
    - E.g. knowing that 674 = 600 (6 hundreds) + 70 (7 tens) + 4 (4 units)
- An ability to use both number facts and understanding of place value to extend their mental calculation abilities
    - E.g. If I know that 3x7=21, I also know that…30x7=210, 30x70=2100
- An understanding of how to multiply and divide by 10, 100 and 1000
    - This **must** be taught as movement of the digits, **not** the decimal point (e.g. to multiply by 10, all digits move one place to the left)
- An understanding that multiplication can happen in any order
    - E.g. 4x5 = 5x4

Note: This list is not given in a progressive order. It is important that children's mental methods of calculation are regularly practised and secured alongside their learning and use of efficient written methods for multiplication, consolidating earlier-used strategies and knowledge when necessary.

Multiplication – written/formal methods

	Methods and strategies	**Notes on introduction**
Stage 1 **Experience of equal groups of objects**	Children will experience equal groups of objects. They will work on practical problem solving activities involving equal sets or groups.	EYFS
Stage 2 **Counting in sets**	They will count in 2s and 10s and begin to count in 5s (orally), begin to play games and complete practical activities to support counting in sets. They will continue to work on practical problem solving activities involving equal sets or groups.	Introduced by end of Year 1
Stage 3 **Repeated addition, arrays, commutativity**	Children will develop their understanding of multiplication and use jottings to support calculation: ✓ **Repeated addition** 3 times 5 is 5 + 5 + 5 = 15 or 3 lots of 5 or 5 x3 Repeated addition can be shown easily on a number line: 	Introduced by end of Year 2 ***National curriculum multiplication expectations:*** ***Year 1 – Solve problems using pictorial representations and arrays*** ***Year 2 – Solve problems using pictorial representations, arrays and repeated addition***

	✓ **Arrays** Children should be able to model a multiplication calculation using an array. This knowledge will support with the development of the grid method.  ✓ **Commutativity** Children should know that 3 x 5 has the same answer as 5 x 3. This can also be shown on the number line. 	
<u>Stage 4</u> **Partitioning – informal jottings/ recording**	38 x 5 = (30 x 5) + (8 x 5) = 150 + 40 = 190 Children will continue to use arrays where appropriate leading into the grid method of multiplication.  	Introduced by end of Year 3
<u>Stage 5</u> **The grid method**	**For example:** 56 x 37 = | 50 | 6 30 | 1500 | 180 ⟶ 1500 7 | 350 | 42 350 180 + 42 2072 1. First partition the numbers 2. Then arrange numbers on a grid 3. Multiply the partitioned parts 4. Add up answers	Introduced by end of Year 3, used throughout all later year groups
<u>Stage 6</u> **The expanded method**	Chn to use partitioning but organise their answers vertically in columns For example: 76 x 4 = 70 + 6 x 4 24 (6x4) 280 (70x4) 304 76 x 4 24 280 304 76 x 34 = 70 + 6 x 30 + 4 24 (6x4) 280 (70x4) 180 (30x6) 2100 (70x30) 2584 76 x 34 24 280 180 2100 2584 Always begin with the least significant digits (right-hand side) – consistent with columnar addition/subtraction and prepares for the compact methods	Introduced by end of Year 5
<u>Stage 7</u> **Standard written method - Short/long multiplication**	• **Short multiplication** 3 7 4 x 6 2 2 4 4 4 2 1. 4x6=24, so write the 6 in the units and carry over the 2 tens 2. 7x6 (really 70x6) = 42 (really 420), but we need to add the extra 2 tens, so write the 4 in the tens and carry over the 4 hundreds 3. 3x6 (really 300x6) = 18 (really 1800) but we need to add on the 4 hundreds, so write 2 in the hundreds column and carry the 2 thousands into the thousands column • **Long multiplication** 46 x 23 138 920 1058 1. Complete 46x3 as per short multiplication 2. Place a zero in the units column on the next line as everything will now be multiplied by a tens number (20) 3. Multiply 46x2 as per short multiplication 4. Add the 'mini-answers' together	Introduced by end of Year 5 ***National curriculum multiplication expectations:*** ***Year 3 - multiply a 2 digit number by a U number using short multiplication*** ***Year 4 – multiply up to 3 digit numbers by a U number using short multiplication*** ***Year 5+ – multiply numbers up to 4 digits by a U or TU number using short and long multiplication***

DIVISION

Mental strategies and prior understanding for division

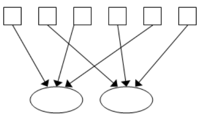
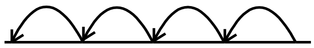
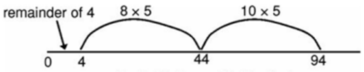
The knowledge, understanding and strategies which children should know and be able to utilise before attempting written strategies include:

- An understanding that division *usually* results in a smaller answer
- Recognition of and the ability to recite/say simple sequences of numbers
  - E.g. 5, 10, 15, 20
- Mental recall of all multiplication facts up to 12x12 (by Year 4) and the associated division facts (see later section on 'Multiplication facts')
- Understanding place value within numbers and being able to partition any number, not only into hundred tens and units but also in other ways
  - E.g. knowing that 674 = 600 (6 hundreds) + 70 (7 tens) + 4 (4 units/ones), but also 640 + 30 + 4
- An ability to use both number facts and understanding of place value to extend their mental calculation abilities
  - E.g. If I know that 3x7=21, I also know that…210÷3=70, 2100÷7=300
- An understanding of how to multiply and divide by 10, 100 and 1000
  - This **must** be taught as movement of the digits, **not** the decimal point (e.g. to divide by 10, all digits move one place to the right)
- An understanding that a remainder is what is left if there are no more complete sets
- An understanding that division cannot happen in any order
  - E.g. 45÷5 does not equal 5÷45

Note: This list is not given in a progressive order. It is important that children's mental methods of calculation are regularly practised and secured alongside their learning and use of efficient written methods for division, consolidating earlier-used strategies and knowledge when necessary.

Division – written/formal methods

	Methods and strategies	**Notes on introduction**
Stage 1 **Grouping and sharing into equal groups**	Children will understand equal groups and share items out in play and problem solving.  Division as *Sharing* Share a bag of 6 sweets between 2 children – one for you, one for me… Division as *Grouping* If I have bag of 6 sweets, how many children can have 2 sweets each.	EYFS
Stage 2 **Counting in groups**	Children will understand equal groups and share items out in play and problem solving. They will count in 2s and 10s and later in 5s. Counting in multiples Use hands and fingers: How many groups of 5 in 15? How many 5s have been counted? How many more 5s do we need to reach 25?	Year 1
Stage 3	Children will develop their understanding of division and use jottings to support calculation	Introduced by end of Year 1

Sharing equally/ grouping leading to repeated subtraction .	✓ **Sharing equally** 6 sweets shared between 2 people, how many do they each get?  ✓ **Grouping or repeated subtraction** There are 6 sweets, how many people can have 2 sweets each? Chn may draw dots or pictures to then group into equal sets  ✓ **Using a number line** 12 ÷ 3 = 4 12 - 3 - 3 - 3 – 3 = 4  0 3 6 9 12 This can lead into later chunking if more than one 'chunk' is subtracted at a time, e.g.  Number line division can also be performed by adding from 0	 Introduced by end of Year 2 Introduced by end of Year 3
<u>Stage 4</u> Partitioning	Partition numbers into a multiple of the divisor plus the remaining ones, then divide each part separately. Informal recording may look like this : 84 70 + 14 ↓ ↓ ÷ 7 10 + 2 = 12 Ensure that chn are being taught division problems at this stage that will have remainders.	Introduced by end of Year 3
<u>Stage 5</u> Chunking	'Chunks' or groups of the divisor are subtracted vertically. The chunks are then added up along the edge E.g. 72 ÷ 6 = 10 + 2 = 12 6 ⟌ 72 - 60 (10 x 6) 12 - 12 (2 x 6) 00 E.g. 123 ÷ 8 = 10 + 5 = 15 R 3 8 ⟌ 123 - 80 (10 x 8) 43 - 40 (5 x 8) 3	Introduced by end of Year 4 and taught consistently through Year 5 and Year 6
<u>Stage 6</u> Short division (dividing by a single digit number)	The short division method is recorded like this: **Remainder expressed as remainder:** 1 2 1 r 2 7 ⟌ 8 ¹4 9 1) How many 7s in 8 (ensure children understand that this is really 800)? Record 1 above the line and carry the remainder of 1 over to the tens column 2) How many 7s in 14? Record 2 above the line 3) How many 7s in 9? Record 1 above the line and **Remainder expressed as a fraction:** 0 9 5 $^1/_3$ 3 ⟌ 2 ²8 ¹6 1) How many 3s are in 2? None, so record 0 above the line and carry over the remainder of 2 to the tens column. 2) How many 3s are in 28? Record 9 above the line and carry over the remainder of 1 to the units column 3) How many 3s are in 16? **Remainder expressed as a decimal:** 4 7 8 . 5 2 ⟌ 9 ¹5 ¹7 . ¹0 1) How many 2s are in 9? Record 4 above the line and carry the remainder of 1 over to the tens column 2) How many 2s are in 15? Record 7 above the line and carry the remainder of 1 to the units column. 3) How many 2s are in 17? Record 8 above the line. Insert a decimal point and	Introduced by end of Year 4 ***National curriculum multiplication expectations:*** ***Year 5 – Divide numbers up to 4 digits by a one digit number***

	write 2 as the remainder	Record 5 above the line. The remainder of 1 is 1 out of 3 (the divisor), which is equal to 1/3.	0 in the tenths column and the carry the remainder of 1 over. 4) How many 2s are in 10? Record 5 above the line, after the decimal point	
<u>Stage 7</u> **Long division**	See Appendix 1 for detailed description of how to teach long division Long division will only be taught to children when they are secure in chunking.			Introduced by end of Year 6 ***National curriculum multiplication expectations:*** ***Year 6 – Divide numbers up to 4 digits by a two digit number***

MULTIPLICATION FACTS

The National Curriculum (2014) sets out expectations for when children should have learnt a given set of times tables facts. These are set out below:

Year group	National curriculum expectation of times tables facts to be learnt by end of year
Year 2	**2s, 5s, 10s**
Year 3	**3s, 4s, 8s** (as well as retention of the above)
Year 4	**All** multiplication facts up to **12x12**

The staff at Christ Church are fully aware that all children learn at different rates and, due to a range of factors, children may not be able to keep up with this schedule of learning. However, a range of strategies are in place to ensure that all children are given consistent and high-quality opportunities to learn their times tables facts in school, including:

- Daily practice (e.g. during 'Maths Meeting' sessions, before transitions)
- Weekly homework
- Weekly tests
- Use of the 'Times Tables Badge' scheme

MONITORING AND REVIEW

The Maths Subject leader and Senior Leadership Team are responsible for monitoring the effectiveness of this policy. It will be reviewed at least every two years.

Notes on calculation policy

- Use notation and layout given in the policy – NOT that provided by Hamilton or any other source
- Big focus on use of hundred square – recommended, but not detailed in policy due to fact that chn need a physical resource in order to calculate
- Column subtraction introduced later than addition
- Importance of using practical apparatus when teaching carrying and stealing

Appendices

Appendix 1 – Long division

Example: 634 ÷ 17…

1.Set out question with the divisor on the left

$$\begin{array}{r} 17\overline{)634} \end{array}$$

2.How many 17s are in 6? Write 0 above the 6

$$\begin{array}{r} 0 \\ 17\overline{)634} \end{array}$$

3.How many 17s are in 63? Discuss ways to calculate. Write 3 above the 3.

$$\begin{array}{r} 03 \\ 17\overline{)634} \end{array}$$

4.What is 3x17? Write this under 63 and subtract using column method.

$$\begin{array}{r} 03 \\ 17\overline{)634} \\ -\ 51 \\ \hline 12 \end{array}$$

5.Bring down the 4 and write it next to the 12.

$$\begin{array}{r} 03 \\ 17\overline{)634} \\ -\ 51\downarrow \\ \hline 124 \end{array}$$

6.How many 17s are in 124? Write 7 above the 4.

$$\begin{array}{r} 037 \\ 17\overline{)634} \\ -\ 51 \\ \hline 124 \end{array}$$

7.What is 7x17? Write this under 124 and subtract using the column method.

$$\begin{array}{r} 037 \\ 17\overline{)634} \\ -\ 51 \\ \hline 124 \\ -\ 119 \\ \hline 5 \end{array}$$

8.As there are no further numbers to bring down, the answer is 37 remainder 5.

$$\begin{array}{r} 037 \\ 17\overline{)634} \\ -\ 51 \\ \hline 124 \\ -\ 119 \\ \hline 5 \end{array}$$

9.To instead express this **<u>answer as a decimal</u>**, add a decimal point and two zeros after 634 and repeat the above steps…
Bring down the zero and write it next to the 5.

$$\begin{array}{r} 037 \\ 17\overline{)634.0} \\ -\ 51 \\ \hline 124 \\ -\ 119 \\ \hline 5\ 0 \end{array}$$

10.How many 17s are in 50? Write in a decimal point and write 2 above the 0.

$$\begin{array}{r} 037.2 \\ 17\overline{)634.0} \\ -\ 51 \\ \hline 124 \\ -\ 119 \\ \hline 5\ 0 \end{array}$$

11.What is 2x17? Write 34 below 50 and subtract using the column method.

$$
\begin{array}{r}
037.2 \\
17\,\overline{)634.0} \\
-\ 51 \\
\hline
124 \\
-\ 119 \\
\hline
50 \\
-\ 34 \\
\hline
16
\end{array}
$$

12. Bring down the 0 you have added in the hundredths column.

$$
\begin{array}{r}
037.2 \\
17\,\overline{)634.00} \\
-\ 51 \\
\hline
124 \\
-\ 119 \\
\hline
50 \\
-\ 34 \\
\hline
160
\end{array}
$$

13.How many 17s are in 160? Write 9 next to the 2. Only continue beyond this point if the answer is required to more than 2 decimal places.

$$
\begin{array}{r}
037.29 \\
17\,\overline{)634.00} \\
-\ 51 \\
\hline
124 \\
-\ 119 \\
\hline
50 \\
-\ 34 \\
\hline
160
\end{array}
$$