**ST CATHERINE’S PRIMARY SCHOOL**

**Mathematics Policy**

**September 2014**

**“Loving and Learning Together as Jesus taught us”**

Description: Description: LHtop

Policy reviewed & passed by: Full Governing Body

Key person responsible Eileen Quigley

**Rationale**

At St. Catherine’s we aim to inspire all children to achieve their full potential. In mathematics this means ensuring a curriculum that is fully inclusive of all children which:

* Develops children’s knowledge and understanding of Mathematical concepts whilst enabling them to practice and sharpen skills and methods;
* Enables them to think critically and communicate their understanding;
* Gives them opportunities to apply learnt mathematical skills to different contexts across the curriculum;
* Provides opportunities to develop problem solving skills useful for maths and across the curriculum.

**Principles**

**Planning**

* Planning begins from a thorough understanding of the children’s needs together with rigorous and effective assessments and tracking, combined with high expectations and ambition for all children to achieve.
* Medium Planning is used from Broadbent Maths; this is outlined on our school website. This outlines the key areas and ensures coverage of the national curriculum.
* Within short term planning, clear success criteria for each learning objective taught should be created – demonstrating the progression needed to reach and exceed the objective.
* Activities and tasks are planned to meet the needs of all the children in the class. Children choose the task which they think will suitably challenge them.
* Lessons are differentiated within the years curriculum – extending children by deepening their understanding rather than accelerating them through the curriculum.
* Class teachers should regularly plan for opportunities for children to apply their maths skills to different problems within maths lessons and across the curriculum. This will also allow children to revisit, practice and consolidate different areas of maths and apply them within different contexts.

**Teaching**

* In the Foundation Stage, children are given the opportunity to develop their understanding of number, measurement, pattern and shape and space through a combination of short, formal teaching as well as a range of planned structured play situations, where there is plenty of scope for exploration.
* Children will become very competent ‘counters’ so that their fluency with the number system provides a foundation for mathematical understanding. Counting forwards and backwards in many different sized steps as well as from different starting and ending points is essential.
* Maths learning builds from a concrete understanding of concepts where children are manipulating objects. When children are able to see concepts this way, they then need to understand the same concepts represented pictorially. Children are then ready for abstract representation before being able to apply their knowledge to different situations.
* Children should be encouraged at all times to communicate their understanding of maths so that it clarifies their thoughts.
* Children’s mental maths is of great importance, with number bonds, times tables facts and various strategies for calculation taught and practiced at school with support sought from parents through homework activities.
* A progression towards efficient written calculations should be developed and applied consistently in each year-group. See attached Progression steps for Calculation.
* Though the nature of lessons will be very different depending on the needs of the class, children should be: active; practicing skills they haven’t yet; learning something new OR learning to apply their knowledge to different contexts. They should be: ‘doing’ very quickly; working at a good pace and being productive; sharing their thoughts and methods and being successful.
* When teaching problem solving skills time (and sometimes whole lessons) should be given to each aspect of problem solving ensuring children get thorough practice at: ‘preparing for problem solving’, ‘thinking through problems to establish what they know and don’t know so far’; actually ‘doing the problem solving’ effectively AND ‘communicating the answer effectively’. They should evaluate the process too. Over time children will improve at each aspect.

**Assessment**

* Assessment for learning should occur throughout the entire maths lesson, enabling teachers/teaching assistants to adapt their teaching/input to meet the children’s needs. This feedback should be incisive and regular.
* Pupil’s work should be marked in line with the Marking Policy and should model how corrections should be made, giving children a chance to learn from their misconceptions or incorrect methods.
* Future lesson design should depend on class success evaluated through marking and observations made during the lesson.
* Assessment of pupil work and progress is ongoing by the class teacher and informs future planning. Teachers mark work in mathematics in line with the school marking policy. Teachers use a tracking tool and this allows teachers to assess children’s progress in mathematics, gathering evidence over the course of the year. Teachers use this information to inform planning for groups and individual pupils.

**Addition Policy**

**Year 1**

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| **Addition steps** | **Example** |
| Count on a number line to add | *What is the number after 9? Show me on this number line.*  numberLine10 |
| Develop quick recall of addition facts to 5, using the symbols + and = | *2 + 3 = \_\_ 2 + 1 = \_\_ 3 + 1 = \_\_* |
| Use strategy of holding the first number in the head and counting on to add | *What is 4 add 3?*  *Show me on this number line how you hold the 4 in your head and count on.*  numberLine10 |
| Understand the commutative law for addition | *What can you tell me about 3 + 4 and 4 + 3? Show me with these rods.* |
| Know the number bonds that total 10 | *0+10 1+9 2+8 3+7 4+6 5+5* |
| Develop quick recall of addition facts to 10 | *5 + 3 = \_\_ 2 + 7 = \_\_ 6 + 4 = \_\_* |
| Use doubles and near-doubles for addition facts to 10 | *How can 4 + 4 = 8 help you work out 4 + 5?* |
| Calculate the value of a missing number in an addition to 10 | *3 + \_\_ = 7 \_\_ + 4 = 9 5 + 5 = \_\_* |
| Produce number stories involving addition to 10 | *Use five toy cars and a garage to make different number stories like this: One car is in the garage and four cars are outside, which is five altogether. One added to four makes five.* |
| Say a number that is one more than any number to 20 | *There are twelve counters in the pot. How many will there be if I put in one more?* |
| Know the number bonds that total 20 | *How many different pairs of numbers can you remember that have a total of 20? How can you be sure you have got them all?* |
| Use doubles and near-doubles for addition facts to 20 | *If you know that 6 add 6 equals 12, how can this help you work out 6 add 7?* |
| Develop quick recall of addition facts to 20 | *7 + 6 = \_\_ 4 + 8 = \_\_ 9 + 5 = \_\_* |
| Calculate the value of a missing number in an addition to 20 | *7 + \_\_ = 15 \_\_ + 4 = 12 11 + 5 = \_\_* |

**Year 2**

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| **Addition steps** | **Example** |
| Produce number stories involving addition to 20 | *Look at this number sentence: □ + □ = 20*  *What could the missing numbers be?*  *Make up a story for your missing numbers.* |
| Add three or more numbers | *Look at the number line. It shows the sum that Jasmine did.*  *Y2MaBD-f4*  *Which of these sums did Jasmine do?*  *5 + 7 + 2 = 14 5 + 6 + 3 = 14*  *5 + 5 + 4 = 14 5 + 8 + 1 = 14*  *Find the missing number: 10 + 🞎 + 25 = 55* |
| Recall addition facts for multiples of 10 to 90 | *I think of a number and add 30. The answer is 70. What is my number?* |
| Add tens and units together and relate to place value | *Show me 30 + 7 using the Dienes material* |
| Use mental strategies for TU + U without crossing the tens | *Explain how you worked these out:*  *24 + 5 = \_\_ 36 + 3 = \_\_* |
| Use mental strategies for TU + U up to and then crossing the tens | *What is 17 + 8? What number facts might you use to help you work this out? How could you show that on a number line?* |
| Use mental strategies for TU + T up to 100 | *What is 37 + 50? How did you work this out? Could you write something or use apparatus to help you explain?* |
| Use mental strategies for TU + T over 100 | *Show me how to find the total of 79p and 50p.* |
| Use mental strategies for TU + TU up to 100 | *How do you work out 35 + 24? What about 46 + 28?* |
| Use mental strategies for TU + TU over 100 | *Show me how you worked out 15 more than 85.* |
| Calculate the value of a missing number in a mental addition | *What number goes in the box to make this calculation correct?  + 12 = 27 How do you know?* |
| Use a formal written method for TU+TU | |  |  |  | | --- | --- | --- | | *Example 1*  *5 4*  *+ 3 3*  *8 7* | *1. Add the ones 4+3 = 7*    *5 4*  *+ 3 3*  ***7*** | *2. Add the tens 50+30 = 80*    *5 4*  *+ 3 3*  ***8*** *7* |  |  |  | | --- | --- | | *Example 2*  *28 + 35 🡪 20 + 8*  *+ 30 + 5*  *50+ 13* | *8 + 5 = 13*  *20 + 30 = 50*  ***50 + 13 = 63*** | |

**Year 3**

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| **Addition steps** | **Example** |
| Use mental strategies to add ones, tens and hundreds to a 3-digit number | *What is 268 add 50? How did you work it out?* |
| Use a formal written method for HTU+TU | *What is 348 add 79?*    *3 4 8*  *+ 7 9*  *4 2 7*  *1 1*   |  |  |  | | --- | --- | --- | | *Step 1*  *8+9=17*  *Partition 17 into 10 and 7.*  *Write the 7 in the ones column and write the 1 ten under the tens column.* | *Step 2*  *10+40+70 =120*  *Partition 120 into 100 and 20.*  *Write 2 tens in the tens column and write the 1 hundred under the hundreds column.* | *Step 3*  *100+300 = 400*  *Write the 6 hundreds in the hundreds column* | |
| Use a formal written method for HTU+HTU | *What is 348 added to 279?*    *3 4 8*  *+ 2 7 9*  *6 2 7*  *1 1*   |  |  |  | | --- | --- | --- | | *Step 1*  *8+9=17* | *Step 2*  *10+40+70 =120* | *Step 3*  *100+300+200=600* | |
| Use a formal written method for adding 4-digit numbers | *What is 6879 add 1905?*    *6 8 5 9*  *+ 1 9 0 5*  *8 7 6 4*  *1 1* |
| Use a formal written method to add money using decimal notation to tenths | *What is the total of £16.40 and £23.90?*    *£ 1 6 . 4 0*  *+ £ 2 3 . 9 0*  *£ 4 0 . 3 0*  *1 1* |

**Year 4**

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| **Addition steps** | **Example** |
| Use a formal written method to add units of measure using decimal notation to tenths | *What is the total weight of two crates weighing 345.6 kg and 297.8 kg?*    *3 4 5 . 6 kg*  *+2 9 7 . 8 kg*  *6 4 3 . 4 kg*  *1 1 1* |
| Use a formal written method to add money using decimal notation to hundredths | *What is the total of £16.49 and £23.96?*    *£ 1 6 . 4 9*  *+£ 2 3 . 9 6*  *£ 4 0 . 4 5*  *1 1 1* |
| Use a formal written method to add units of measure using decimal notation to hundredths | *What is 56.89 m added to 38.75 m?*    *5 6 . 8 9 m*  *+3 8 . 7 5 m*  *9 5 . 6 4 m*  *1 1 1* |

**Year 5**

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| **Addition steps** | **Example** |
| Use a formal written method to add larger numbers | *What is 6879 add 1905?*    *6 8 5 9*  *+1 9 0 5*  *8 7 6 4*  *1 1* |
| Add numbers mentally with increasingly large numbers | *How do you work out 2380 + 600? What about 4009 + 75?* |
| Add fractions with the same denominator | *What is 3/8 + 3/8? Can you write the fraction in a different way?* |
| Use a formal written method to add decimals to thousandths | *What is 56.893 kg added to 38.755 kg?*    *5 6 . 8 9 3 kg*  *+3 8 . 7 5 5 kg*  *9 5 . 6 4 8 kg*  *1 1 1* |

**Year 6**

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| **Addition steps** | **Example** |
| Use brackets in calculations and know the order of operations | *Answer these:*  *(15 + 8) x (12 - 6) =*  *(9 + 15) – (3 x 2) =* |
| Add fractions with different denominators | *What is 3/5 + 2/3? Explain the method you used to work it out.* |

**Subtraction Policy**

**Year 1**

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| **Subtraction steps** | **Example** |
| Count back on a number line to subtract | *What is 2 less than 5? Show me on this number line.*  numberLine10 |
| Develop quick recall of subtraction facts to 5, using the symbols - and = | *5 - 3 = \_\_ 4 - 1 = \_\_ 3 - 2 = \_\_* |
| Find the difference between two sets of up to 10 objects | *Count the number of cubes in each bag. Find the difference between the number of cubes to work out how many more are in this bag.* |
| Find the difference between numbers to 10 by counting on a number line | *What is the difference between 6 and 9? Show me how you worked it out on this number line.*  numberLine10 |
| Develop quick recall of subtraction facts to 10 | *8 - 3 = \_\_ 6 - 5 = \_\_ 9 - 6 = \_\_* |
| Understand the inverse relationship between addition and subtraction | *Look at this addition: 5 + 3 = 8*  *Can you make a subtraction sentence using those numbers?* |
| Use inverse relationship to solve missing number calculations to 10 | *What number goes in the box to make this calculation correct?  - 6 = 2 How do you know?* |
| Produce number stories involving subtraction to 10 | *Here are some cubes. Show me how to use them to work out nine take away four. How could you record that as a number sentence? Can you make up a number story for this?* |
| Say a number that is one less than any number to 20 | *What is one less than fourteen?* |
| Find the difference between numbers to 20 by counting on a number line | *Make up a question that uses the words difference between and tell me how to do it.*  *Can you use the number track to work out the difference between 15 and 8?*  *If I start at 7 and count 8 more squares along the number track, where will I stop?* |

**Year 2**

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| **Subtraction steps** | **Example** |
| Develop quick recall of subtraction facts to 20 | *Look at this number sentence: □ - □ = 8*  *What could the missing numbers be?* |
| Use inverse relationship to solve missing number calculations to 20 | *What number goes in the box to make this calculation correct?  - 7 = 8 How do you know?* |
| Produce number stories involving subtraction to 20 | *Make up a number story for 14 – 8.* |
| Recall subtraction facts for multiples of 10 to 90 | *Alice and Ben play a game. Alice scores 90 points. Ben scores 60 points. How many more points does Alice score than Ben?* |
| Subtract tens from 2-digit numbers | *What is 57 take away 30? How did you work it out?* |
| Use mental strategies for TU – U without crossing the tens | *What is 68 subtract 5? How did you work it out?* |
| Use mental strategies for TU – TU without crossing the tens | *What is 76 subtract 41? How did you work it out?* |
| Subtract units from tens | *How would you work out 30 subtract 6? Show me on a number line.* |
| Use mental strategies for TU – U up to and then crossing the tens | *Rachel spent 64p. She spent 8p more than Sam. How much did Sam spend? What calculation is needed? How did you decide? How did you record it?* |
| Use mental strategies for TU – TU crossing the tens | *What is 53 subtract 28? How did you work it out?*  *What is the difference between 39 and 62? Use a number line to show your method.* |
| Calculate the value of a missing number in a mental subtraction | *What number goes in the box to make this calculation correct? 48 - = 27 How do you know?* |
| Use a formal written method for TU-TU | |  |  |  | | --- | --- | --- | | *What is 67 subtract 35?*  *60 + 7*  *- 30 + 5*  *30 + 2* | *1. Subtract the ones 7-5*    *6 7*  *- 3 5*  ***2*** | *2. Subtract the tens 60-30*    *6 7*  *- 3 5*  ***3***  *2* | |

**Year 3**

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| **Subtraction steps** | **Example** |
| Use mental strategies to subtract ones, tens and hundreds from a 3-digit number | What is 345 subtract 90? How did you work it out? |
| Use a formal written method for TU-TU with exchange | *What is 74 subtract 35?*     |  |  | | --- | --- | | 6~~7~~14  - 3 5  9  ***Step 1***  *Exchange and rename 70 + 4 as 60 + 14*  *14 – 5 = 9* | 6~~7~~14  - 3 5  3 9  ***Step 2***  *60 – 30 = 30* | |
| Use a formal written method for HTU-HTU | *What is 734 subtract 385?*     |  |  |  | | --- | --- | --- | | 7 2~~3~~ 14  - 3 8 5  9  ***Step 1***  *Exchange and rename 30 + 4 as 20 + 14*  *14 – 5 = 9* | 6~~7~~12~~3~~ 14  - 3 8 5  4 9  ***Step 2***  *Exchange and rename 700 + 20 as 600 + 120*  *120 – 80 = 40* | 6~~7~~12~~3~~ 14  - 3 8 5  3 4 9  ***Step 3***  *600 – 300 = 300* | |

**Year 4**

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| **Subtraction steps** | **Example** |
| Use a formal written method for subtracting 4-digit numbers | *What is 2734 subtract 1385?*  26~~7~~12~~3~~ 14  - 1 3 8 5  1 3 4 9 |
| Use a formal written method to subtract money using decimal notation to tenths | *What is the difference in price between two bags costing £18.60 and £32.10?* |

**Year 5**

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| **Subtraction steps** | **Example** |
| Use a formal written method to subtract units of measure using decimal notation to tenths | *What is 38.60 litres subtract 19.50 litres?* |
| Use a formal written method to subtract money using decimal notation to hundredths | *What is the difference in price between two coats costing £39.45 and £53.12?* |
| Use a formal written method to subtract units of measure using decimal notation to hundredths | *What is the difference in weight between two sacks weighing 13.65kg and 22.08kg?* |
| Use a formal written method to subtract larger numbers | *A car is driven 13458 km in one year. The following year it is driven for 18906 km. How many more kilometres has been driven in the second year?* |
| Subtract numbers mentally with increasingly large numbers | *What is the difference between in age between someone born in 1968 and someone born in the year 2000?* |
| Subtract fractions with the same denominator | *I have 3 cakes that I cut into quarters. If I take 7 of the quarters, how much cake is left?*  *What is 7/8 - 3/8?* |

**Year 6**

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| **Subtraction steps** | **Example** |
| Use a formal written method to subtract decimals to thousandths | *Write the missing digits in this subtraction:*  *5 3 5 . 2 3 \**  *- 1 \* 8 . 3 8 4*  *3 6 6 . 9 \* 3* |
| Use brackets in calculations and know the order of operations | *Answer these:*  *(15 – 8) x (7 + 6) =*  *(9 + 15) – (8 ÷ 2) =* |
| Find the difference between positive and negative numbers or two negative numbers | *Tell me two temperatures that lie between 0 °C and –8 °C. Which is the higher? How can you tell? What is the difference between the higher temperature and –8 °C?* |
| Subtract fractions with different denominators | *What is 4 ¼ - 2 ½ ? Explain the method you used to work it out.* |

**Multiplication Policy**

**Year 1**

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| **Multiplication steps** | **Example** |
| Group objects in twos and count groups | *Group these counters in twos. How many groups are there?*  *How many counters are there altogether?* |
| Count in steps of 1, 2 and 10 | *How far can you count in twos?*  *20, 30, 40... Count on to 50.* |
| Recall the doubles of numbers to 10 | *Roll this die and double your number. What score do you get?*  *Look at these domino doubles. How many spots are there altogether?* |
| Count groups of objects to multiply – repeated addition | *How many 2p coins make 20p?*  *How many socks are there altogether in these eight pairs?*  *How many fingers are there altogether on six hands?* |
| Count in twos, fives and tens and derive the multiples of these numbers | *My sequence has these numbers in it: 10, 15, 20, 25… What numbers come next in the sequence?*  *Show me the multiples of 2 on this number grid.* |

**Year 2**

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| **Multiplication steps** | **Example** |
| Double numbers to 20 | *Roll these two dice and add the numbers together. Now double your number. What score do you get?* |
| Use arrays to represent multiplication | *Here are 20 counters. How could you arrange them in equal rows?*  *How could you use a number sentence to show your arrangement?* |
| Understand the x sign as ‘multiplied by’: 4+4+4 = 4x3 | *4 + 4 + 4 + 4 + 4 = 20*  *Write this addition fact as a multiplication fact.*  *□ × □ = □* |
| Understand the commutative law for multiplication, 4x5 = 5x4 | *Look at these diagrams:*  *Y2MaBE-f2*  *Is 2 × 4 the same as 4 × 2? How do you know?* |
| Develop quick recall of multiplication facts for 2, 5 and 10 | *Write a list of the tables facts you can say quickly.*  *Can you use any of these to help you learn others?* |
| Recognise multiples of 2, 5 and 10 to the tenth multiple | *Which are the multiples of 2 in this list? 13, 4, 12, 8, 19, 16* |
| Calculate the value of a missing number in a number sentence, such as 3 x \_ = 30 | *What are the missing numbers? □ × 2 = 16 10 × □ = 40 □ × ◇ = 20 How do you know?* |
| Recognise multiples of 2, 5 and 10 beyond the tenth multiple | *Draw rings around all the multiples of 5. 55, 60, 54, 67, 80*  *How do you know they are multiples of 5?* |

**Year 3**

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| **Multiplication steps** | **Example** |
| Develop quick recall of multiplication facts for 3 and 4 | *Write the missing numbers in the boxes.*  *6 × 4 = 12 × □*  *□ × 3 = 6 x 5* |
| Recognise multiples of 3 and 4 beyond the tenth multiple | *Is 82 a multiple of 4? How do you know?* |
| Use practical and informal methods to multiply 2-digit numbers by 2, 3, 4, 5 | *Rulers are 30 cm long. If you place six of them end to end, how long a line will they make?*  *Explain how you solved this problem. Did you write anything down?* |
| Understand the effect of multiplying by 0 and by 1 | *What do you notice when you multiply any number by 1?*  *Is it always, sometimes or never true that when you multiply a number by zero, the answer is zero?* |
| Use a written method for TUxU | *How would partitioning help you to calculate 27 × 6?*  *What is 46 x 5?*  *6x5=30 40x5=200 200+30 = 230*  *34 6*  *x 5*  *2 3 0* |
| Develop quick recall of multiplication facts for 6 and 8 | *What is 8 × 4? Did you know or did you work thorough one of the times tables? Which table did you use?* |

**Year 4**

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| **Multiplication steps** | **Example** |
| Recognise multiples of 6, 8 and 9 beyond the tenth multiple | *Use a venn diagram to show multiples of 6 and multiples 9.*  *Choose 12 numbers between 80 and 120.* |
| Multiply together three single-digit numbers | *What is 3 x 8 x 4?*  *How did you work it out?* |
| Develop quick recall of multiplication facts for 11 and 12 | *If you know that 10 x 8 = 80, how can you use this to help learn 12 x 8?*  *What patterns are there in the 11x table?* |
| Know all multiplication facts to 12x12 | *Which tables facts up to 12 x 12 do you still need to learn?*  *What strategies could you use to learn them?* |
| Multiply by multiples of 10 mentally | *If 4 × 6 = 24, what is 40 × 6 and 400 × 6?*  *How could you quickly work out the answer to 3 × 80?* |
| Use known facts to find unknown facts | *How could you calculate 15 x 20?*  *What about 14 x 12?* |
| Use a written method for HTUxU | *53 28 4*  *x 6*  *2 3 0 4* |

**Year 5**

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| **Multiplication steps** | **Example** |
| Use a written method for TUxTU | *There are 12 pencils in a box. A school buys 24 boxes. How many pencils does the school buy?*  *24*  *x 12*  *48 (24 x 2)*  *240 (24 x 10)*  *288* |
| Use a written method for HTUxTU | *What is 584 x 46? Estimate: ≈ 600 x 50 ≈ 30 000*  *584*  *x46*  *3 504 (584 x 6)*  *23 360 (584 x 40)*  *26 864* |
| Solve scaling problems, including those involving rates | *How many times bigger is 2400 than 6? How do you know?*  *A model car is 1/50 of real size. If the model is 47cm long, what is the length of the real car?* |
| Multiply proper fractions and mixed numbers by whole numbers | *Show me how you would work out 12 multiplied by 1 ½* |

**Year 6**

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| **Multiplication steps** | **Example** |
| Factorise large numbers to help multiply | *How can you use factors to multiply 17 by 12?* |
| Use a written method for ThHTU x TU | *Show the method you would use to multiply 4835 by 38.* |
| Know the order of operations to calculate with brackets | *Answer these:*  *(17x4) + (121÷11) =*  *(8+3) x (7+9) =* |
| Use a written method to multiply numbers with up to two decimal places | *Multiply 0.07 by 0.6.* |
| Use diagrams to help multiply pairs of proper fractions | *Show me how you could answer ¾ x ½* |

**Division Policy**

**Year 1**

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| **Division steps** | **Example** |
| Group objects into twos to divide | *Here are 12 counters. Put them into groups of 2. How many groups are there?* |
| Group objects into 2s, 3,s, 4s etc and count groups to divide – repeated subtraction | *How many 2p coins make 20p?*  *Put these 20 animals in groups of 5. How many groups did you make? Show me how you did it.* |

**Year 2**

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| **Division steps** | **Example** |
| Understand the ÷ sign as ‘divided by’ and ‘groups of’ 12 ÷ 3 = 4 groups of 3 | *Show me on a number line how you could do: 14 ÷ 2, 15 ÷ 3, 20 ÷ 5*  *15 pencils are grouped in threes. How many groups are there? Explain how you worked it out.* |
| Halve numbers to 20 | *I'm thinking of a number. If I halve it my answer is 9. What number was I thinking of? Explain how you know. Is this the same as 18÷2=9?* |
| Understand the inverse relationship between multiplication and division | *What multiplication and division facts can you make from the numbers 2, 8 and 16?* |
| Understand that division is not commutative | *Is it always, sometimes or never true that 10÷2 gives the same answer as 2÷10? Show me how you know* |
| Develop quick recall of division facts for 2, 5 and 10 | *Which tables facts help you to work out 30 divided by 5?* |
| Use practical methods to divide with remainders | *I have 22 counters here that I want to divide equally between 5 children. Show me what 22 ÷ 5 means with these counters.* |
| Calculate the value of a missing number in a number sentence | *What are the missing numbers? □ × 2 = 12 20 ÷ □ = 4 □ ÷ 2 = 10 How do you know?* |

**Year 3**

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| **Division steps** | **Example** |
| Develop quick recall of division facts for 3 and 4 | *I am thinking of a number. I divide it by 4 and the answer is 8. What is my number?* |
| Use practical and informal methods to divide 2-digit numbers by 2, 3, 4, 5 | *Answer this: 65 ÷ 5 = □*  *Explain how you solved this.*  *You are given that 10 × 3 = 30 and 3 × 3 = 9. How many threes are there in 39?* |
| Use a written method for TU ÷ U, rounding remainders up or down | *35 crayons are shared fairly into three pots. How many crayons are in each pot? How did you decide on your answer?* |
| Develop quick recall of division facts for 6 and 8 | *What is 24 ÷ 6? Can we check this with a multiplication?* |

**Year 4**

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| **Division steps** | **Example** |
| Develop quick recall of division facts for 11 and 12 | *If you know that 80 ÷ 10 = 8, how can you use this to help learn 96÷ 8?* |
| Know all division facts by using the multiplication facts to 12x12 | *Which division facts do you still need to learn?*  *What strategies could you use to learn them?* |
| Divide by multiples of 10 mentally | *What is 300 divided by 30? How did you work it out?* |
| Use known facts to find unknown facts | *What is half of 72? How did you work it out? Is there a different way to do it? What is half of 720? Half of 7200? How do you know?* |
| Use a written method for HTU÷U, including remainders | *What is 168 divided by 3? Estimate: 180 ÷3 = 60*  *5 6 \_*  *3/ 1 6 8*  *- 1 5 0 (50x3)*  *1 8*  *1 8 (6x3)*  *0 0*  *168÷3 = 56* |

**Year 5**

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| **Division steps** | **Example** |
| Use a written method for ThHTU ÷ U, including remainders | *How many 5s in 1382?*    *2 7 6 r 2*  *5 / 1 13 3832* |
| Use tests of divisibility to recognise multiples of 2, 3, 4, 5, 6, 8, 9 and 10 | *Explain the rule of divisibility for multiples of 6. How do you know if 414 is a multiple of 6?* |
| Solve scaling problems, including those involving rates | *A car is drawn at a scale of 1:50. If the actual car is 3m 50cm in length, what is the length of the drawn car?* |
| Interpret remainders in division as whole numbers, fractions or by rounding | *A farmer collects 349 eggs and puts them into egg boxes that hold 6 eggs. All the eggs must be in an egg box. How many egg boxes will he need?*  *A group of 5 people win a prize of £6142 and share it between them. How much do they each get?* |

**Year 6**

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| **Division steps** | **Example** |
| Factorise numbers to help divide | *How can you use factors to divide 96 by 12?* |
| Know the order of operations to calculate with brackets | *Answer these:*  *(17x4) + (121÷11) = (8+3) x (81÷9) =* |
| Use a written method for ThHTU ÷ TU, including remainders | *Show the method you would use to divide 1749 by 16.* |
| Calculate and interpret the mean as an average | *Carol counts the matches in 10 boxes. She works out that the mean number of matches in a box is 51. Here are her results for 9 boxes.*  *Y6MaBC-f9*  *Calculate how many matches are in the tenth box.* |
| Use a written division method for money and measures with an answer up to two decimal places | *A piece of wood is 3.25 m long. I use all the wood to make five shelves of equal length. How long is each shelf in metres? In centimetres?* |
| Use diagrams to help divide proper fractions by whole numbers | *Show me how you could answer ½ ÷ ¼* |