

**Learning to Love, Loving to Learn**

**Written Calculation Policy for Multiplication and Division – Revised July 2022**

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| **Stage** | **Multiplication x** | **Division ÷** |
| **1**  **Reception** | * Doubling numbers to 10 through songs and practical activities – using fingers and manipulatives | * Explore how quantities can be distributed equally |
| **2**  **Year 1** | **Multiply with small quantities using objects, diagrams and pictorial representations**  **See NCETM**  Use number lines counting in 2s, 5s and 10s  Chanting in 2s, 5s and 10s  Use Dienes for counting in groups of 10 | **Group and share small quantities using objects, diagrams and pictorial representations**  **See NCETM**  When counting in 2s, 5,s and 10s, ask how many groups of 2, 5 or 10. |
| **3**  **Year 2** | **U x U and doubles to 20**  **Use practical resources**   * Counting in repeated groups using a number-line   2 x 3 = 6   * Include multiplications not in 2, 5 or 10 times tables * Develop understanding of multiplication as scaling (3 times bigger/taller) * Introduce x sign as ‘times’ or ‘multiplied by’ | **U ÷ U or TU ÷ U**   * Halving numbers to 20 using practical activities and songs * Counting in repeated groups using a number-line * Grouping on a number line     6 ÷ 2 = 3  Key question: How many groups of 2 are  in 6?  6 divided by 2 is  How many groups of 2 are in 6? |

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| **4**  **Year 2** | **U x U**   * Introduce commutative law (multiplication can be done in any order) through arrays using at least 2,5 and 10 times tables:   Arrays  Develop understanding of multiplication using arrays    5 + 5 + 5 = 15  3 + 3 + 3 + 3 + 3 = 15  5 x 3 = 15  3 x 5 = 15   * Record calculation as a number sentence 2 x 4 = 8   Or 4 x 2 = 8  See NCETM 2.6 TP1- start with dots then progress to numbers       * Understanding of the inverse and practical resources to solve missing number problems   Text  Description automatically generated | **TU ÷ U**   * Children know and understand that ‘sharing’ and ‘grouping’ are both forms of division and record using ÷ sign.   **Sharing using a bar model**  12 ÷ 4 = 3    12 ÷ 3 = 4    Arrays  Continue work on arrays. Support children to see how multiplication and division are inverse.  Look at an array- what do you see? |

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| **5**  **Year 3** | **Doubling T**   * Use base ten equipment to rehearse doubles of 10, 20, 30, 40 …   **Doubling TU**   * Initially without crossing the tens e.g. 24 x 2 * Progress to crossing tens e.g. 29 x 2     **TU x 10**   * Use understanding of place value to multiply whole numbers by 10 (Multiply by 10 Rap, Jump song and place value sliders, base ten equipment)   e.g.  15 x 10 = 150 | **Halving T’s**   * Use practical activities to rehearse halves of 10, 20, 30, 40 …   **Halving T U’s**   * Initially even numbers e.g. half of 34 * Progress to odd numbers e.g. half of 29     **HTU ÷ 10**   * Use understanding of place value to divide whole numbers by 10 (Jump song and place value sliders, base ten equipment)   e.g.  450 ÷ 10 = 45 |

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| **6**  **Year 3** | **TU x U using 2,3,4,5,8 and 10 multiplication tables**   * Grid method   23 x 8 = 184  Essential skills:   * Able to partition TU * Able to multiply by 10 * Able to use column addition | **TU ÷ U with remainders**   * Use practical grouping activities to show remainders * Use a number-line to show remainders     Key question:  How many 5’s in 23?  Ans: 4 remainder 3   * Partition dividend in different ways eg 52 ÷ 4 = 13 |
| **7**  **Year 4** | **TU x U and HTU x U using all multiplication tables up to 12x12**   * Short method     Tip: Model alongside grid method to see link between different approaches | **TU ÷ U and HTU ÷ U**   * Short method – support with base ten equipment initially * Continue to count in groups     Essential knowledge:   * Understand calculation as “How many groups of 3 in 66?” or “How many 3’s in 66?” * Understands that **division** works from the **left** |
| **8**  **Year 5** | **ThHTU x U using short method see stage 7**  **TU x TU, HTU x TU and THTU x TU**  • Long multiplication    Essential skills:  • Able to use short multiplication TU x U  • Understands multiplying by multiple of 10  • Uses column addition efficiently | **HTU ÷ U and ThHTU ÷ U**   * Short method involving exchange and remainders     Essential skills:   * Know tables to 10 x 10 * Understand concept of remainder   Essential skill:   * Able to exchange 2 hundreds for 20 tens   Tip: reinforce understanding using base ten equipment – provide practical exchange opportunities     * More complex calculations involving exchange * Express remainders as a fraction or decimal eg.   6497 ÷ 8 = 812 r1  =812 1/8  =812.125 |
| **9**  **Year 6** | **TU.t x U and TU.th x U**  Essential skill:   * Understand and line up place value i.e. recognise   0.6 x 8 = 4.8 | **HTU ÷ TU and ThHTU÷TU**   * Long division   Essential skills:   * Understand short method of division and concept of exchange and remainders * Able to use column subtraction * Can derive multiples of TU efficiently |
| **10**  **Year 6** |  | **TU.t ÷ U and TU.th ÷ U and TU.th ÷ TU**    Essential skill: Understand and line up place value |