

**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
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| **2****Year 1** | **Multiply with small quantities using objects, diagrams and pictorial representations****See NCETM** Use number lines counting in 2s, 5s and 10sChanting in 2s, 5s and 10sUse 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 = 3Key question: How many groups of 2 arein 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:

ArraysDevelop understanding of multiplication using arrays 5 + 5 + 5 = 153 + 3 + 3 + 3 + 3 = 155 x 3 = 15 3 x 5 = 15* Record calculation as a number sentence 2 x 4 = 8

Or 4 x 2 = 8See 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 = 312 ÷ 3 = 4ArraysContinue 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 = 184Essential 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

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| **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**
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| **8****Year 5** |  **ThHTU x U using short method see stage 7****TU x TU, HTU x TU and THTU x TU**• Long multiplicationEssential 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
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| **10****Year 6** |  | **TU.t ÷ U and TU.th ÷ U and TU.th ÷ TU**Essential skill: Understand and line up place value |