

# Help at Home!

What can you do with your child at home to help them with the Grid Method?

We are not asking you to do page after page of multiplication questions with your child at home!

The best answer we can give? **Times Tables, Times Tables, Times Tables!** The more your child knows their tables, the easier they will find the Grid Method. Any practice you can do will help, from just saying the tables, to listening to tables songs, to playing tables games—Don't forget to look in the Times Table Strategies Booklet that we have already sent home!

**Partitioning numbers**—Another way that you could help your child with the grid method is to help them with partitioning numbers—i.e. splitting them up into hundreds, tens and units etc. Like knowledge of times tables, understanding of partitioning is crucial for children in helping them understand the Grid method.

# Tudhoe Colliery Primary School



## Key Stage 2 Maths Calculation Strategies

# Multiplication



# Calculation Strategies



Maths calculation strategies have changed quite a bit over the years and we often get asked by parents for information sheets to show the methods that the children are using in school.

We have created this booklet to demonstrate our multiplication strategies. We hope you find it useful!

## X Multiplication X The Grid Method

The strategy we use for multiplication in school is 'The Grid Method'.

The Grid method teaches children to multiply numbers by partitioning them into a grid and then solving the calculation by doing separate multiplications and adding the answers together.

- ThHTU x TU.....E.g. 3251 x 46

x	3000	200	50	1
40	120000	8000	2000	40
6	18000	1200	300	6



= 149 546

- TU.TeHu x U.....E.g. 28.12 x 8

x	20	8	0.1	0.02
8	160	64	0.8	0.16



= 224.96

- TU.TeHu x U.Te.....E.g. 31.67 x 8.3

x	30	1	0.6	0.07
8	240	8	4.8	0.56
0.3	9	0.3	0.18	0.021



= 262.861

*Progression through Key Stage 2:*

**Year 3** - children multiply 2-digit numbers by a single digit, using informal methods (jottings)

**Year 4** - children use the grid method to multiply TU x U

**Year 5** - children continue with the grid method and use it to multiply HTU x U, TU x TU and to multiply decimals with one decimal place by a one digit number

**Year 6** - children move into multiplying with thousands and decimals to 2 decimal places.

# The Next Steps

- TU x TU.....E.g. 68 x 79

x	60	8
70	4200	560
9	540	72



= 5372

- TU.Te x U.....E.g. 27.7 x 4

x	20	7	0.7
4	80	28	4.2



= 112.2

- ThHTU x U.....E.g. 2345 x 6

x	2000	300	40	5
6	12000	1800	240	30



= 14070

- HTU X TU.....E.g. 356 x 78

x	300	50	6
70	21000	3500	420
8	2400	400	48



= 27768

Once your child has mastered the grid method with TU x U and HTU x U, they will move onto...

# Prior Learning

Teaching of the grid method begins in Year 4. In **Year 3**, children are taught an 'informal method' of multiplying numbers. This helps prepare them for moving into formal methods.

They are taught to...



- Partition (split) numbers into Tens and Units, e.g.  
 $45 = 40 + 5$
- Multiply multiples of ten by a single digit, e.g.  
 $40 \times 3 = 120$

Children are taught to do this by using their knowledge of basic multiplication and then multiplying by 10 or 100. E.g.

To work out  $40 \times 3$ , they would work out that  $4 \times 3 = 12$

**NOTE:** Children are not taught to do this by 'just adding a zero'. They are taught that to multiply a number by ten, each digit moves over to the left and we fill the space with a zero. E.g.

For  $12 \times 10$ :  

H	T	U	←
1	2		
1	2	0	DIGITS MOVE TO THE LEFT

They then use these skills to multiply 2-digit numbers by a single digit. E.g.

$30 \times 6 = 180$        $34 \times 6$        $4 \times 6 = 24$   
 $180 + 24 = \underline{204}$

# Using the Method

First the numbers are partitioned and put into the grid:

For the sum  $46 \times 8 \dots$



x	40	6
8		

The grid works by splitting the big multiplication into mini multiplication sums. For each box in the grid, you multiply the number along the top with the number down

x	40	6
8	$40 \times 8$	$6 \times 8$

**NOTE:** The children do not need to write the sums into the boxes on the grid—this has just been done to illustrate the method.

Next the children work their way along the grid, completing each 'mini multiplication' in turn.

x	40	6
8	320	48

Now all the children have to do is add up their answer. This may be done using the 'Expanded' column addition method, or the 'Carrying tens' method. Both methods are shown in detail in the Addition strategies booklet, but a brief example of each method is shown below.

$$320 + 48 =$$

$$\begin{array}{r} 320 \\ 48 + \\ \hline 368 \end{array}$$

$$\begin{array}{r} 320 \\ 48 + \\ \hline 300 \text{ (300 + 0)} \\ 60 \text{ (20 + 40)} \\ 8 \text{ (8 + 0)} \\ \hline 368 \end{array}$$

**NOTE:** TU  $\times$  U is the **first step** in learning the grid method. The **second step** is multiplying HTU by U, which is normally introduced at the end of Year 4 or beginning of Year 5. Turn the page for more details on the progression in the method across Key Stage 2.