MultiGrid Stencil

How Does it Work?

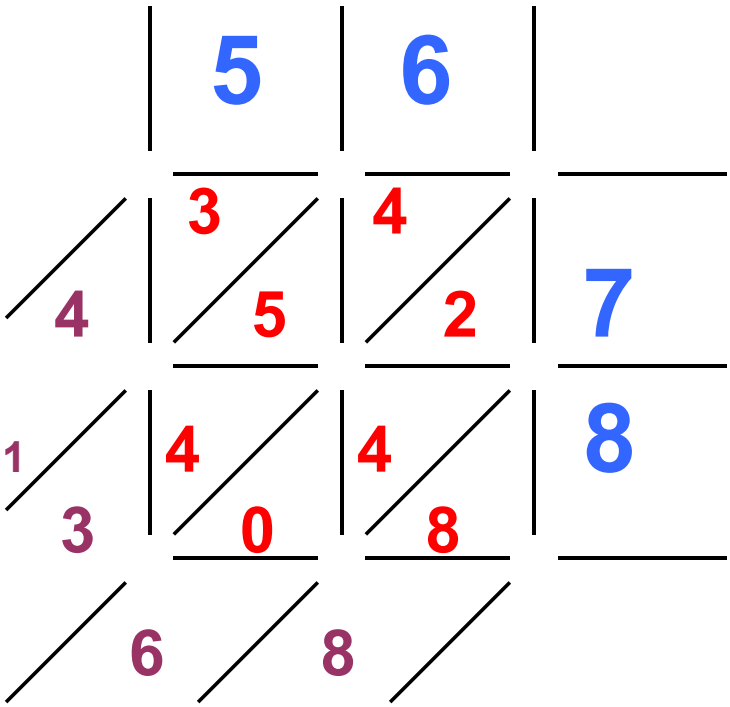
To calculate 56 x 78

1. Use the stencil to draw out the grid below.

2. Put the question digits into the outer boxes.

3. Use times tables to calculate and fill the inner boxes.

4. Add up the diagonal columns to complete the answer.



Therefore: **56** x **78** = **4368**

For a free, interactive version of the above contact paulerichards@hotmail.com

MultiGrid Stencil

The MultiGrid Stencil can be adapted to use with this alternative method of multiplication.

To calculate 74 x 53

1. Use the MultiGrid Stencil to draw the grid as shown below.
2. The digits from the question fit into the outer boxes.
3. Use multiplication to fill the inner boxes.

70	**4**	
3500	**200**	**50**
210	**12**	**3**

To calculate the answer add up the numbers inside the grid.

3500 + 200 + 210 + 12 = **3922**

Therefore: **74** x **53** = **3922**

MultiGrid Stencil

Decimal Multiplication

To calculate 6.8 x 8.3

1. Use the stencil to draw out the grid below.

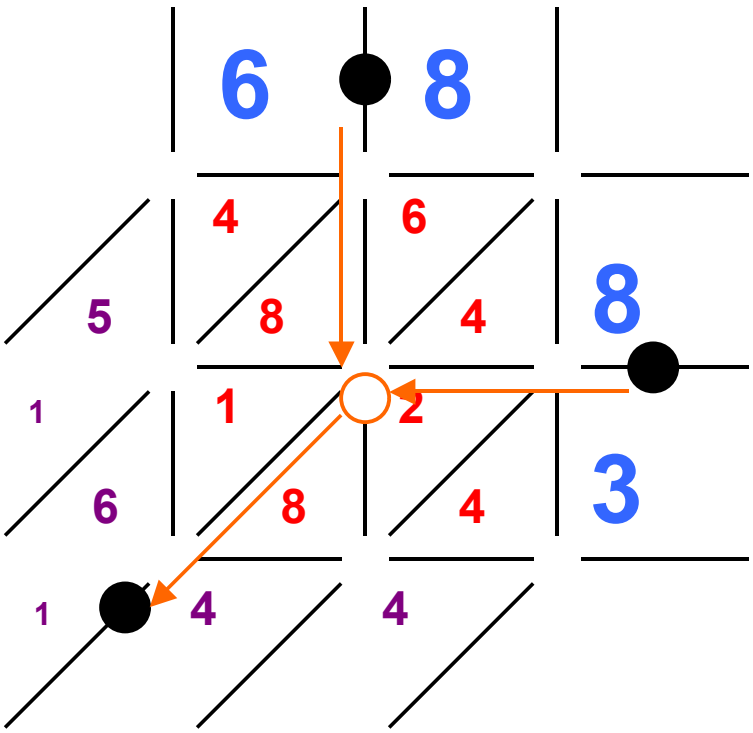
2. Put the question digits into the outer boxes with the decimal points on the lines as shown.

3. Use times tables to calculate and fill the inner boxes.

4. Add up the diagonal columns.

5. The decimal points from the question move into the grid until they meet.

6. The decimal point then moves along the diagonal line until it fits into the answer.



Therefore: 6.8 x 8.3 = 56.44

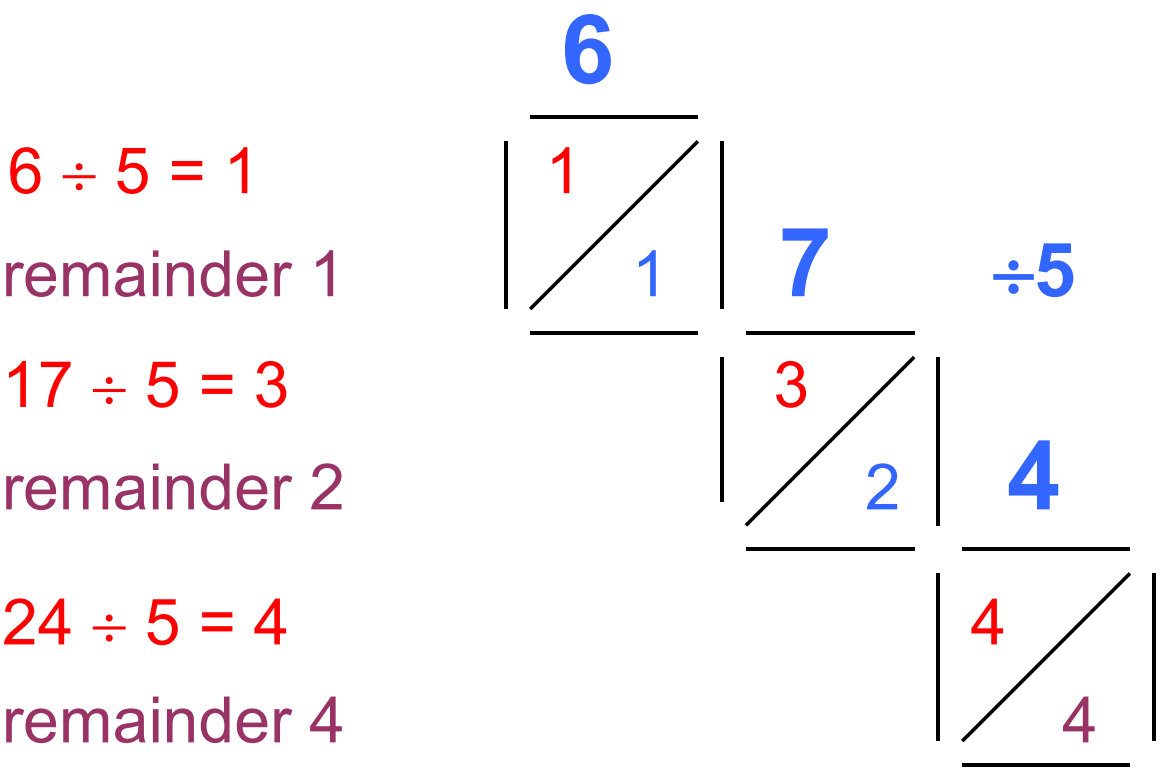
MultiGrid Stencil

The MultiGrid Stencil can be adapted to use with this method of division.

To calculate 674 ÷ 5

1. Use the MultiGrid Stencil to draw 3 boxes. 3 boxes because there are 3 digits in the dividend.

2. The digits from the dividend sit on top of the boxes.



Therefore: **674** ÷ **5** = **134** (numbers above the diagonal)
remainder 4 (number below last diagonal)

MultiGrid Lesson Plan
Starter
Multiplication practise to suit the ability of the group.
Examples:

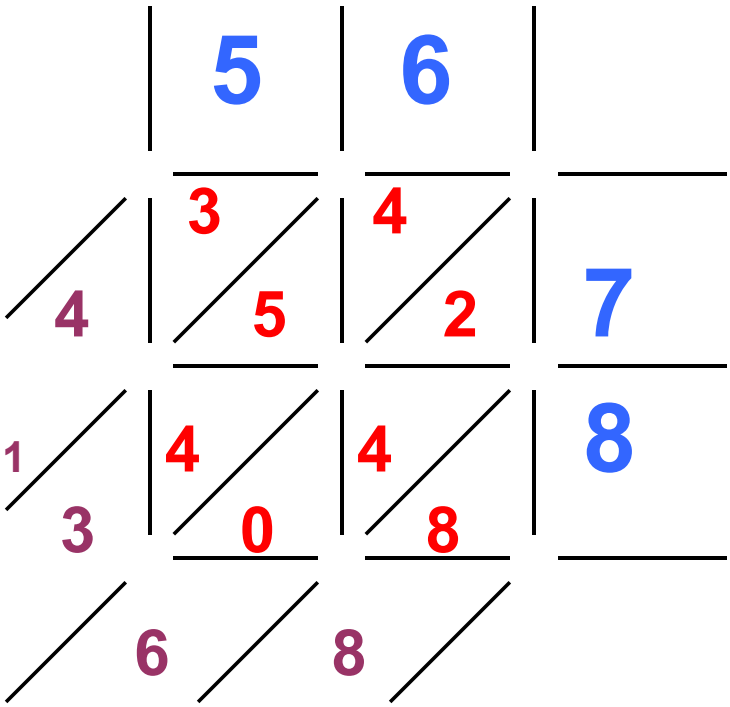
- Quick fire times table questions.
- Flash cards with multiplication questions, pupils to hold up the correct answer using number fans.
- Counting on in whole numbers, fractions, decimals etc.
- Practise different methods of mental multiplication.
- Matching pairs of multiplication and division sums.

The list is endless but I'm sure you get the idea.

Main Part
Learning Objective: Multiply a three-digit number by a two-digit number including decimal numbers.
Extend to division of whole and decimals numbers.

Set two multiplication questions, e.g. 56 x 78 and 3.4 x 1.6, and ask pupils to solve it using their preferred method.

Show the class how the sums can be solved using the Galosian method.



Therefore: 56 x 78 = 4368

Set another two multiplication questions,
e.g. 64 x 76 and 4.9 x 7.3, and ask pupils to solve it using the Galosian method with the aid of the MultiGrid Stencil.

Go through the answers to both questions ensuring that pupils gain an understanding of how the method works.

Set more questions to enable pupils to practise using the stencil. Give out answers and comment on pupil feedback.

Questions to test pupils understanding:
Solve 567 x 56 using the stencil?
Solve £8.99 x 17.
Solve 89 x 9.
Pupils will have to think about how they use the stencil to set the sum out.

Go through the answers ensuring that pupils gain an understanding of how to use the stencil for sums using more or less than two digits.

Set similar questions for pupils to practise using the stencil to set the sum out.

Plenary 1:

Use the MultiGrid Stencil to solve problems such as these:

Kites

Gwen makes kites to sell.
She sells the kites for **£4.75** each.

Gwen sells **26** kites.

How much does she get for the **26 kites?**

Plants

A shop sells plants.

Find the cost of 35 plants.

Show your working.

Cost is £ .....

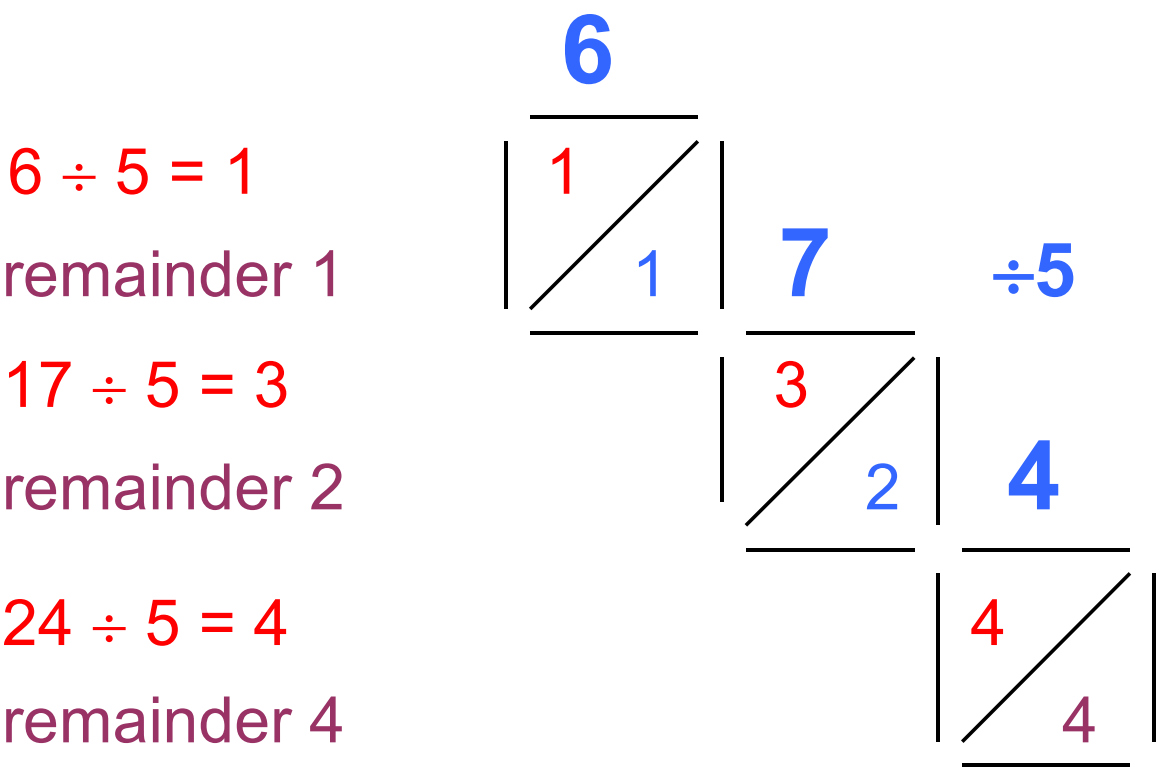
Plenary 2:

Introduce division using the MultiGrid Stencil with a view to continue the work next lesson.

Calculate 674 ÷ 5

1. Use the MultiGrid Stencil to draw 3 boxes. 3 boxes because there are 3 digits in the dividend.

2. The digits from the dividend sit on top of the boxes.



Therefore: **674** ÷ **5** = **134** (numbers above the diagonal)
remainder 4 (number below last diagonal)

Advantages of Using the MultiGrid Stencil

- Pupils tend to achieve a greater proportion of correct answers using the Galosian method.
- Enables pupils to multiply decimals with confidence and accuracy.
- For many pupils the hardest part of the Galosian method is drawing the grid. The MultiGrid Stencil is designed to overcome this.
- Pupils enjoy the novelty of using the stencil.
- Can be adapted to draw the grid method as suggested in the Key Stage 3 National Strategy.
- Can be adapted for use with division questions.

Disadvantages

- Stencil cannot yet be used in exams. Hopefully, as the stencil becomes more popular, it will be.
- The stencil doesn't promote a full understanding of the mathematics involved in the sum. However the stencil can be adapted to draw the more complicated grid method as suggested in the Key Stage 3 National Strategy. This method does require a greater understanding of the mathematics involved.