

Dr Fog Presents

**The idea of
'carrying' when
doing multiplication**

Year 5 (National Numeracy Strategy)
(Based on DFEE Sample Lessons)



Resources

- Nothing!



Mental Learning Objective

- I can practice my multiplication facts.



Mental Learning Task

- Today we are going to work at making the 'area' method of multiplication more efficient.



Mental Learning Task

- I want you to calculate 37×6 using any method you like (apart of course a calculator!)
- How did you do this?
- Who used repeated addition.
- Did you do it in your head?



Mental Learning Task

- **Now try 589×7**
- Did you use the same method?
- Show your workings on the board.



Mental Learning Objective

- I can practice my multiplication facts.



Main Learning Objective

- I can develop my paper and pencil methods to record, explain and support the multiplication of the two-digit numbers.



Key idea

Try to choose the method that will give you the correct answer as quickly as possible.



Main Learning Task

- Look at 589×7
- 589 can be broken up into 500, 80 and 9.
- Multiply by 7.
- The products are now added.



Main Learning Task

- This can be recorded either horizontally or vertically.
- When we add several numbers together it is better to write them under one another.



Main Learning Task

• So 589×7

Can be written as

$$589 \times 7$$

$$3500 + 560 + 63$$

$$3000 + 1000 + 3$$

$$4123$$

$$\begin{array}{r} 589 \\ \times 7 \\ \hline 63 \\ 560 \\ 3500 \\ \hline 3000 \\ 1000 \\ 120 \\ 3 \\ \hline 4123 \end{array}$$



Main Learning Task

$$589 \times 7$$

- There is a quicker way of solving 589×7
- First we make it a vertical sum



Main Learning Task

589

X 7

- First we multiply the units.
- What do we get for 7×9 ?



Main Learning Task

$$\begin{array}{r} 6 \\ 589 \\ \times 7 \\ \hline 3 \end{array}$$

- 63.
- Write down the 3 and carry the 6 to the tens column.



Main Learning Task

$$\begin{array}{r} 6 \\ 589 \\ \times 7 \\ \hline 3 \end{array}$$

- Now multiply 7×8
- Add the 6 we carried.
- What do we get?



Main Learning Task

$$\begin{array}{r} 6 \quad 6 \\ 589 \\ \times 7 \\ \hline 23 \end{array}$$

- 62
- Write down the '2' and carry the 6 to the hundreds column.



Main Learning Task

$$\begin{array}{r} 6 \quad 6 \\ 589 \\ \times 7 \\ \hline 23 \end{array}$$

- What is 7×5 ?
- Add the 6.
- What do you get?



Main Learning Task

$$\begin{array}{r} 6 \quad 6 \\ 589 \end{array}$$

$$\begin{array}{r} \underline{\times 7} \end{array}$$

$$4123$$

- 41
- We have no more columns to carry to, so write down whole answer



Main Learning Task

- Now solve these problems.

$$45 \times 7$$

$$34 \times 3$$

$$68 \times 4$$

$$357 \times 7$$

$$67 \times 9$$

$$456 \times 9$$

Choose if you want to solve the multiplication using the long or short multiplication method.



Main Learning Task

- Simplification:-
- Suggest they stick to multiplying two-digit by one-digit numbers.



Main Learning Task

- Challenge:-
- Can they find a method of multiplying two- or three-digit numbers by a two- digit number.



Main Learning Objective

- I can develop my paper and pencil methods to record, explain and support the multiplication of the two-digit numbers.



Plenary

- Ask the children to get together in pairs and compare their answers.
- Check if your answers look about the right size?
- Do the last digits look as if they are right?



Plenary

- What method did you use?
- Was it easy?
- Difficult?
- Can you see why it works?



Plenary

- Can you show how you solved one of the sums.
- Show your workings.



Plenary

- Here is a problem.
- Find some multiplication problems of the form $AB \times C$ where the answer lies between 500 and 600.
- How many such problems can you find?
- How would you know you have found them all?



Review of Key Idea

- Try to choose the method that will give you the correct answer as quickly as possible.
- Did you learn this in this lesson?



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