

Dr Fog Presents

**Developing the
area method for
doing multiplication.**

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



Resources

- None required!



Mental Learning Objective

- I can practise my multiplication facts.



Mental Learning Task

- Today you are going to use the 'area' method for multiplying two-digits numbers.



Mental Learning Task

- The method for carrying out multiplications also works well with large numbers.
- How would we solve 34×9 ?



Mental Learning Objective

- I can practise my multiplication facts.



Main Learning Objective

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



Key idea

**choose a method
that you find
most efficient.**



Main Learning Task

- Suppose we want to multiply 85×63 .
- We could get some squared paper and cut out a piece that was 85 squares long, and 63 wide.
- Count the squares.



Main Learning Task

85 squares

63 squares

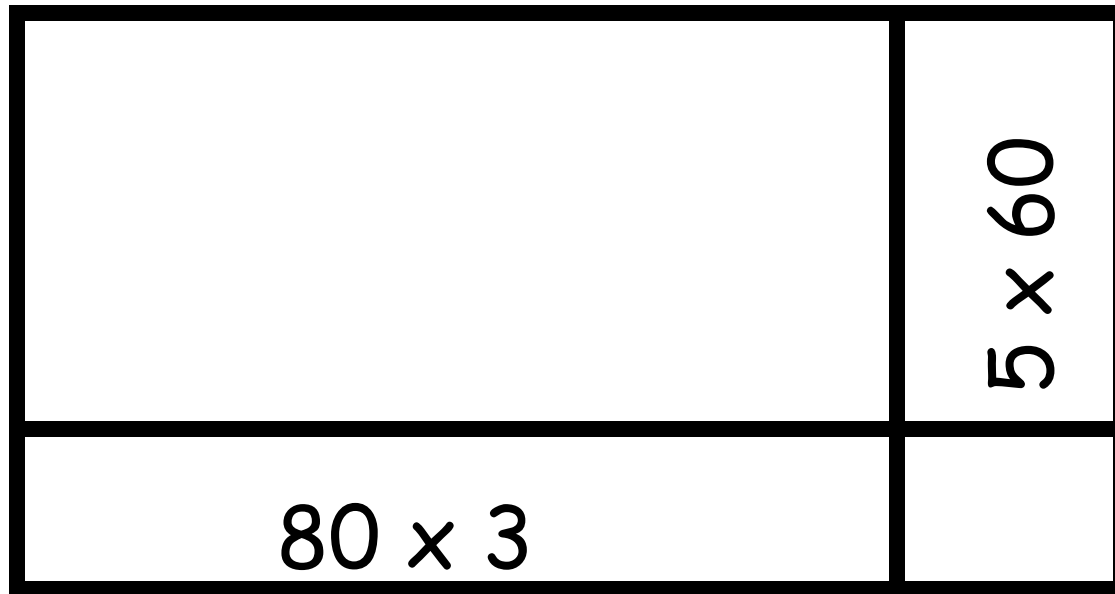


- First we will split it into easier boxes.

Main Learning Task

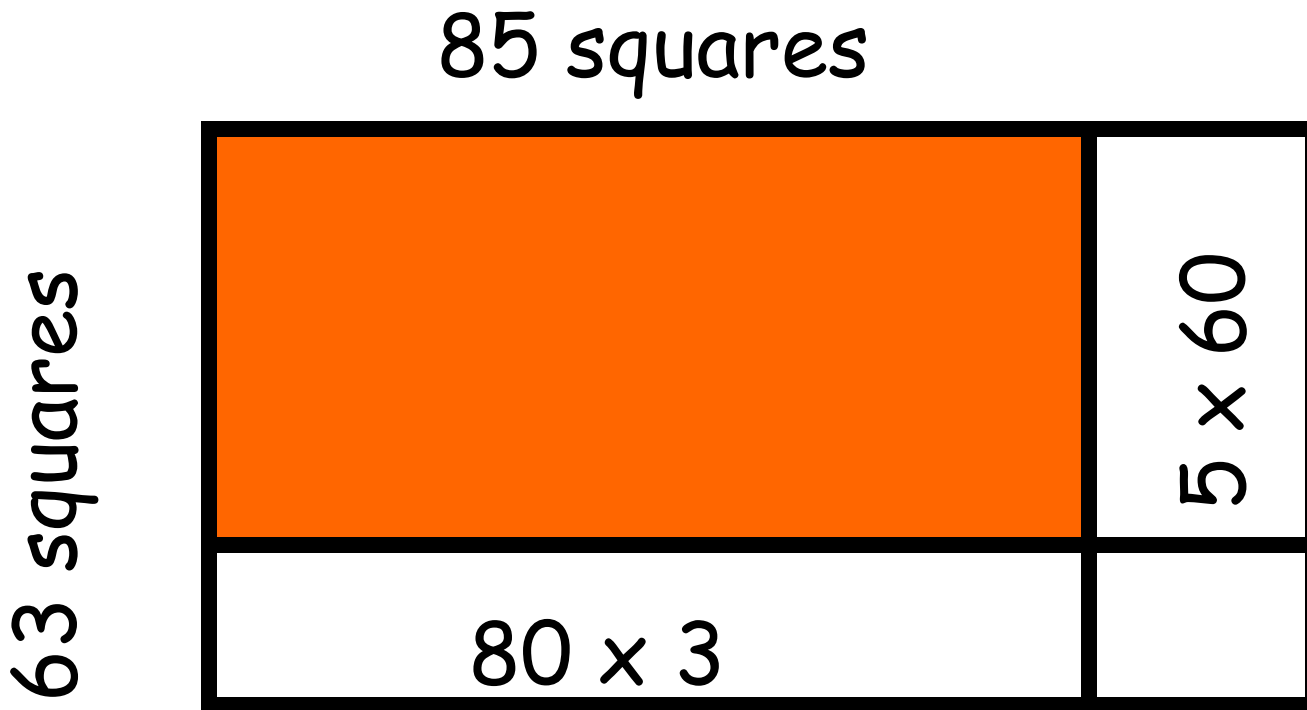
85 squares

63 squares



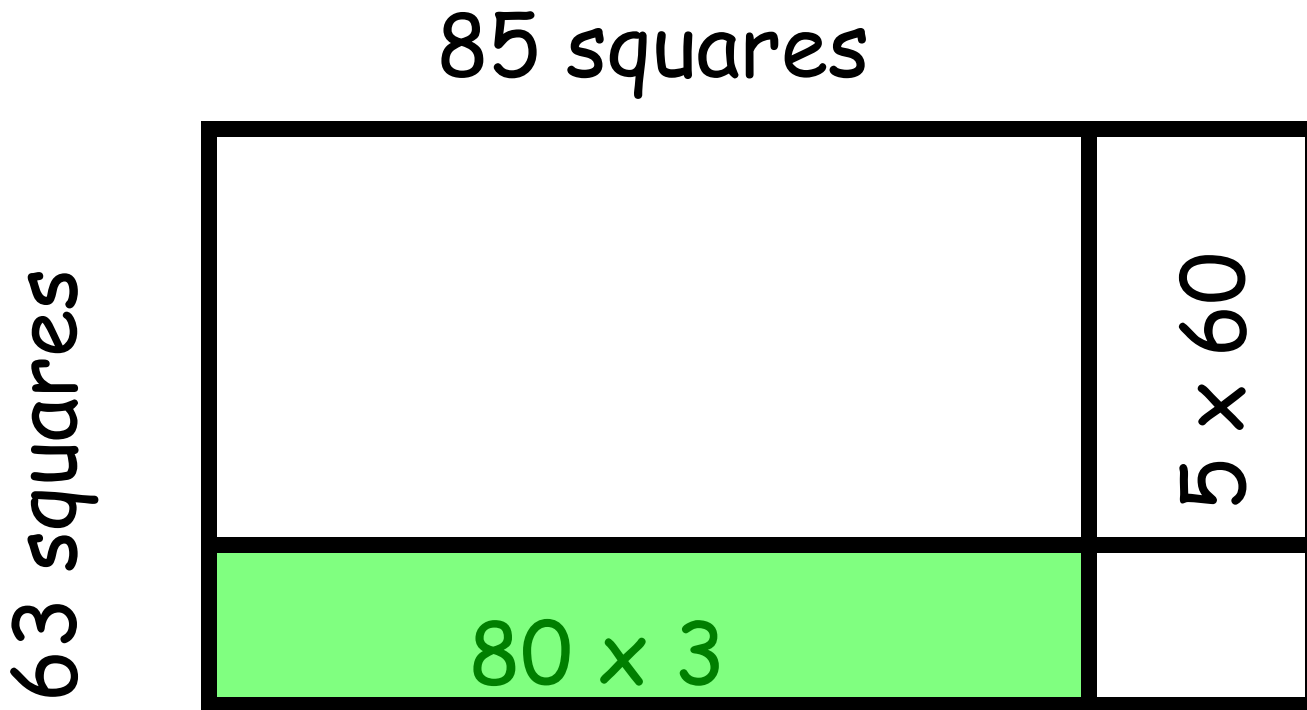
- Can you see how I did it?

Main Learning Task



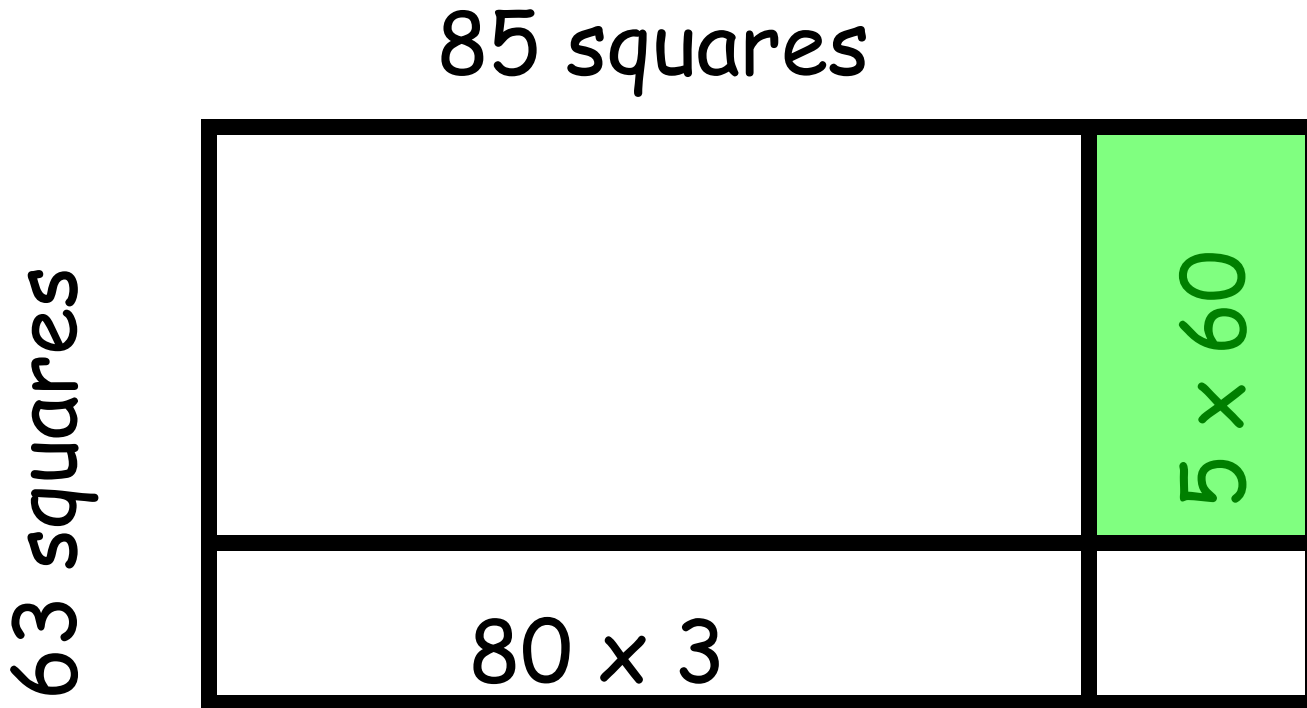
- One piece that is 60 rows of 80 squares

Main Learning Task



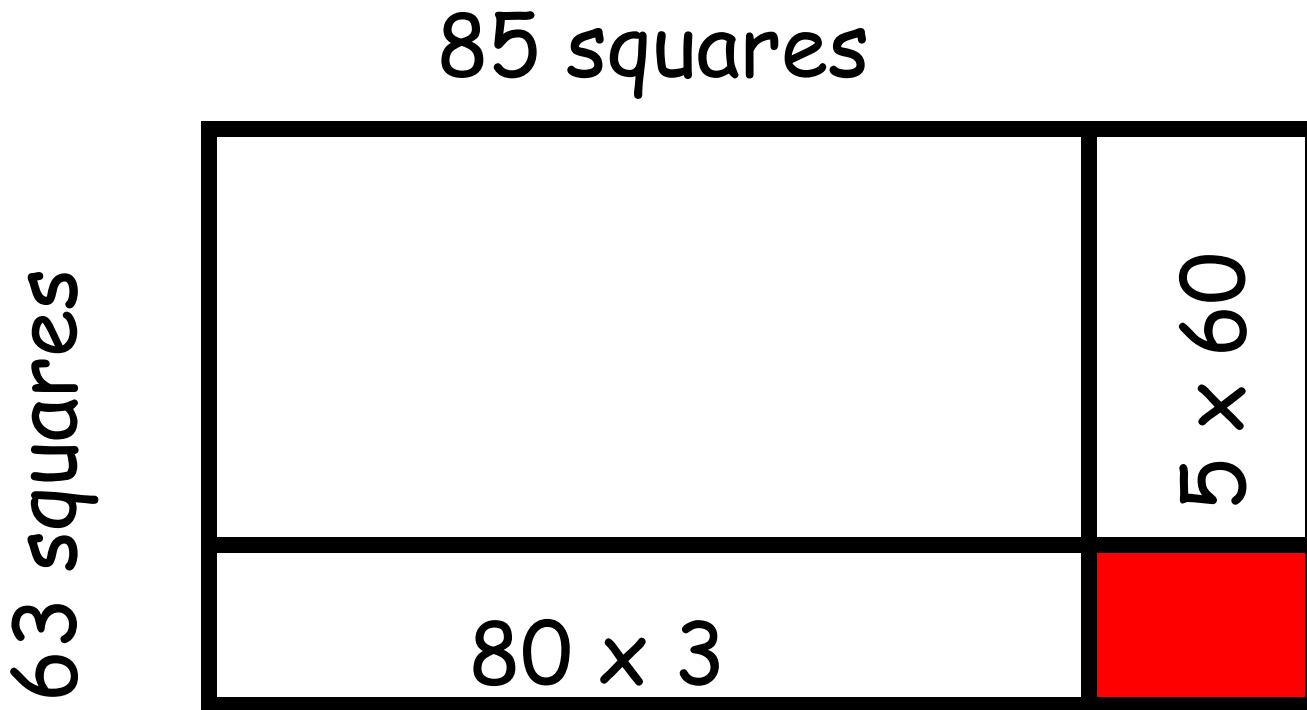
- One piece that is 3 rows of 80 squares

Main Learning Task



- One piece that is 60 rows of 5 squares

Main Learning Task



- One piece that is 3 rows of 5 squares

Main Learning Task

$$85 \times 63$$

Solve each part

Rewritten as

$$80 \times 60 =$$

$$80 \times 3 =$$

$$5 \times 60 =$$

$$5 \times 3 =$$

Write this calculation on the board



Main Learning Task

- Simplifications
- Encourage children to choose simpler problems and to take their time.
- Start with a method that they feel confident with however slow.
- Can you make it more efficient and faster?



Main Learning Task

- **Challenges:-**
- Draw an area diagram to show how to multiply a three-digit number by a two-digit number, for example 345×56 .
- Can you use this diagram to complete the calculation?
- How could you make it faster?



Main Learning Task

- See if you can solve these problems.

34×65

45×21

47×89

25×77

31×97

67×43

32×23

66×91

76×72

91×49

31×24

49×51



Main Learning Objective

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



Plenary

- Sit in pairs
- Compare your answers.
- Do your answers look about the right size?
- Do the last digits look as if they are right?



Plenary

- Which method did you use?
- Why did you choose that method?
- Show your working on the board



Plenary

- Find some multiplication problems in the form $AB \times CD$ where the answer lies between 300 and 500.
- How many such problems can you find?
- How would you know when you have found them all?



Review of Key Idea

- Choose the method that you find most efficient.
- Did you learn this in this lesson?



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