## Key Vocabulary:

times tables

multiply by

array

related facts

lots of

groups of

multiple

repeated addition

factor

product

## Key learning: choose an efficient method

In Year 3 we encourage you to look closely at the numbers in the calculation and make a decision about which method you will use:
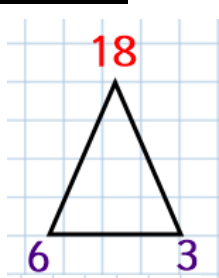
**Always start at number 1 and only use a written method if you can't work it out mentally**

1. Do I know the answer? (can I just say it automatically - rapid recall)
2. Can I work it out in my head? (mental method)
3. Do I need to use a jotting? (mental method)
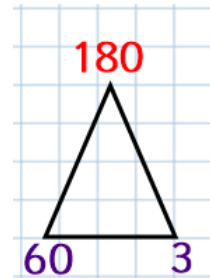4. Do I need a written method? (column method)

### MENTAL METHOD
**Key learning:** use related facts to multiply a 2-digit number (tens number) by a 1-digit number

## Example: 60 x 3

18

6    3

I know
6 x 3 = 18

180

60    3

So
60 x 3 = 180

### RAPID RECALL- TIMES TABLES
**Building on the 2, 5, and 10 times tables that you learned in Year 2, in Year 3 you have to learn your 3, 4 and 8 times tables by heart**

## 3 x tables    4 x tables    8 x tables

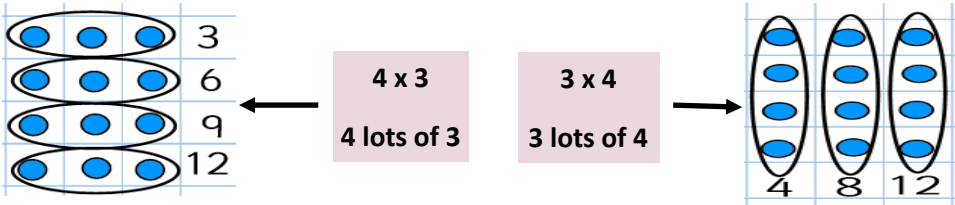| 3 x tables | 4 x tables | 8 x tables |
|---|---|---|
| 1 x 3 = 3 | 1 x 4 = 4 | 1 x 8 = 8 |
| 2 x 3 = 6 | 2 x 4 = 8 | 2 x 8 = 16 |
| 3 x 3 = 9 | 3 x 4 = 12 | 3 x 8 = 24 |
| 4 x 3 = 12 | 4 x 4 = 16 | 4 x 8 = 32 |
| 5 x 3 = 15 | 5 x 4 = 20 | 5 x 8 = 40 |
| 6 x 3 = 18 | 6 x 4 = 24 | 6 x 8 = 48 |
| 7 x 3 = 21 | 7 x 4 = 28 | 7 x 8 = 56 |
| 8 x 3 = 24 | 8 x 4 = 32 | 8 x 8 = 64 |
| 9 x 3 = 27 | 9 x 4 = 36 | 9 x 8 = 72 |
| 10 x 3 = 30 | 10 x 4 = 40 | 10 x 8 = 80 |
| 11 x 3 = 33 | 11 x 4 = 44 | 11 x 8 = 88 |
| 12 x 3 = 36 | 12 x 4 = 48 | 12 x 8 = 96 |

Remember,
when learning your times tables practise using different language:
"four times eight"    "four lots of eight"    "four eights"
Also, multiplication is commutative (can be completed in any order) so learn your times tables in any order such as 9 X 3 and 3 X 9
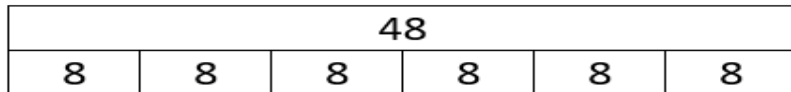
## Key learning: understand multiplication through arrays

Multiplications can be represented through **arrays.** This can support you in understanding 'lots of/groups of' and also
commutativity: that 4 x 3 = is the same as 3 x 4

| 4 x 3 | 3 x 4 |
|---|---|
| 4 lots of 3 | 3 lots of 4 |

3
6
9
12

4   8   12

## Key learning: to understand multiplication as repeated addition

**6 x 8 = 48    is the same as   8 + 8 + 8 + 8 + 8 + 8 = 48**

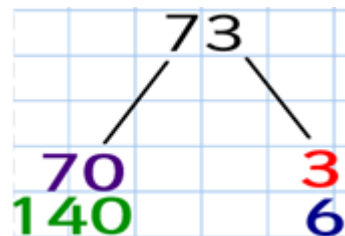| 48 | | | | | |
|---|---|---|---|---|---|
| 8 | 8 | 8 | 8 | 8 | 8 |

## MENTAL METHOD
### Key learning: Use partitioning to double any 2-digit number

# Example: double 73

Partition 73 into tens and ones  **70** and **3**

Double 7 is 14 so double 70 is 140 (ten times greater)

Recombine to find the answer

73
70      3
140     6

**140 + 6 = 146**

## WRITTEN METHOD
### Key learning: Multiply a 2 - digit number by a 1-digit number using the grid method.

25 x 8 =

| X | 20 | 5 |
|---|---|---|
| 8 | | |

*Partition the two digit number into 10s and 1s on the grid*

25 x 8 =

| X | 20 | 5 |
|---|---|---|
| 8 | 160 | |

*Using your related facts, multiply the 10s digit.*
*E,g*
*I know 2 x 8 = 16*
*So 20 x 8 = 160*

25 x 8 =

| X | 20 | 5 |
|---|---|---|
| 8 | 160 | 40 |

*Multiply the ones digit.*

160
+   40
200
  1

*Add the 2 numbers together*