

Want to pass 44 club and move up to 55?

If yes, then this is for you!

**Did you know?**

If you've passed 33 club (hint: you have!) then you already know your 2,5,10,3 and 4 times tables -

**BRAVO!!!**

That means you know **46** facts out of a total of only **67** facts in the 99 club!

You can write this as a fraction:  $\frac{46}{67}$

Another way of saying the same thing is that you already know nearly 70% of all 99 club facts!

Yet another way of saying the same thing is that you already know **more**

**than**  **-of all times tables facts needed to get to 99 club!**

That's WELL OVER HALF!

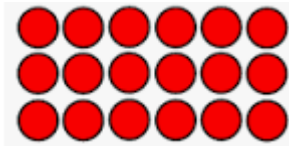
**WELL DONE YOU!**

But how can this possibly be when you've still got to learn the 6s, 7s, 8s, 9s, 11s and 12s? That's a lot of times tables still to learn surely?

Yes it is. But did you know that every time you learn a new times table, you are ALSO learning bits of the other times tables without even knowing it? For example, if you've learned **your 2s, 5s, 10s, 3s and 4s** (hint - you have!) you already know **2x6, 5x6, 10x6, 3x6 and 4x6!** That's **loads** of the 6 times table **you already know!** We can thank something with a **big** name but a simple

idea for this. It's called the (ready for the big name?) **commutative law**.  
And now for the simple idea...

It just means that **3x6** is exactly the same as **6x3**. It's easy to see if you have 18 objects and lay them out like this:



There are **18** red dots.

We can 'see' this as

**3** horizontal (*side to side*) rows of **6** (**3x6**) or...

**6** vertical (*top to bottom*) columns of **3** (**6x3**).

But we haven't changed how many there are in total. It's always **18**!

OK, so now you know you've already done a lot of the hard work in reaching the 99 club, let's take the next step towards the ultimate goal of getting a 99 club medal!

## **EVERYTHING YOU NEED TO KNOW TO PASS THE 44 CLUB.**

The 44 club now includes the 6 times table. But here's the great thing - ***you ALREADY know half of it!*** Here it is, with the ones you already know shown in red:

1x6=6  
2x6=12  
3x6=18  
4x6=24  
5x6=30  
6x6=36  
7x6=42  
8x6=48  
9x6=54  
10x6=60  
11x6=66  
12x6=72

So, the 44 club has only 6, yes 6 new facts in it! That's not too many at all is it? So you *can* just memorise the new black ones. Or better still, you can **investigate ways of working them out** – much better if you forget! Read on if you want to investigate ways of working them out....



Hmm.... Some of them look a bit tricky, don't they?

The first thing to notice is that **6 is an even number**, so no matter how many 6s you have, you will always end up with an **even number**. There are no odd multiples of 6! **All multiples of 6** (answers in the 6 times table) **are even** and end with 0,2,4,6 or 8. In fact the ones have a repeating pattern of 6,2,8,4,0. Check it out on the previous page!



This image shows **3 lots of 6**. The total number will be **even** (18).

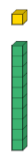
**FACT 1.** Ok, so let's learn the **easiest** one first: **11x6=66**

**The 11 times table** is pretty easy to learn (*up to 11 times 9*).

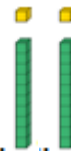
That's because **11 lots of something** is **ten lots of that number** and **1 more of that number**. So  $11 \times 3$ , is ten 3s (**30**) and one more 3 (**3**). In other words, **33**! (You already knew that!)

Nice pattern, isn't it?

Linking it to our place value knowledge, we can also see that **11** is **1 ten** (green)



and **1 one** (yellow).



**2** elevens are **22**, which is **2 tens** and **2 ones** and so on: ..

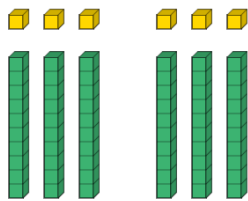
$$11 \times 3 = 33 \text{ (3 tens, 3 ones)}$$

$$11 \times 4 = 44 \text{ (4 tens, 4 ones)}$$

$$11 \times 5 = 55 \text{ (5 tens, 5 ones)}$$

So,  $11 \times 6 = 66$  (6 tens, 6 ones)

Shown with the **green tens** and **yellow ones** below:



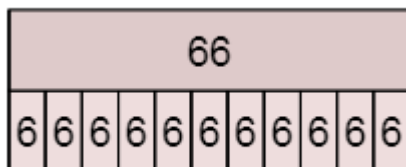
**FACT 2** Once you know  $11 \times 6 = 66$ , it's quite easy to work out fact 2:  $12 \times 6 = 36$  (or  $6 \times 12 = 36$ )

The 12 times table seems a little **scary** to learn, but it really isn't.

Let's look at  $11 \times 6$  again: other ways of saying  $11 \times 6$  are:

***11 lots of 6 or 11 groups of 6 or even 11 boxes of 6.***

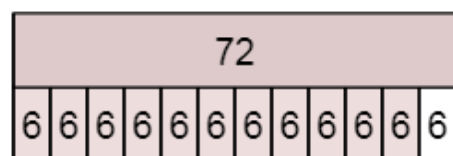
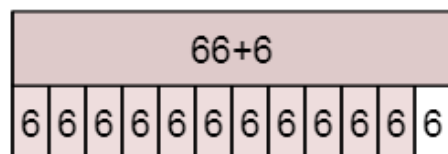
In the bar model below, on the second row, there are **11 boxes**. Count them if you like! **Each box has 6** in it. You already know that if you have **11 boxes** and each box has **6** in it, the total will be **66**, because  $6 \times 11 = 66$  which also means  $11 \times 6 = 66$ . The top bar shows the number **66** which is the same as **11 boxes of 6**. So far so good? Excellent work!



Well,  $12 \times 6$  is just going to be **one more box** with **6** in it.

In the second row instead of 11 boxes of 6, we now have **12 boxes of 6**.

The top row now says **66+6**. We now just need to work out **66+6**



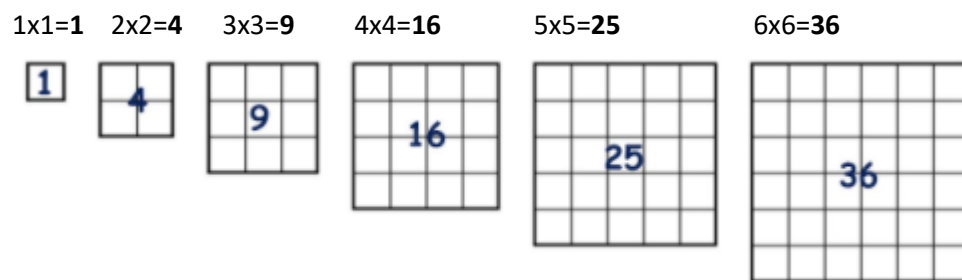
So  $12 \times 6 = 72$ .



There are lots of other ways of working out **6x9**. If you haven't looked at the 9 times table before, it's **super cool** and has *lots* of wonderful patterns and tricks, making it **great fun** and **easy** to remember. Check out the 'how to pass the 55 club' sheets if you want to know more and learn it **fast!**

**Fact 4**  $6 \times 6 = 36$ .

**36** is an example of a **square number** and they are **really cool** numbers. Have a look at some in the picture below. If we arrange the small squares into arrays, they make **square shapes**:



You can see **all** the square numbers in the 99 club on the **multiplication grid** below. They are the ones in the **diagonal line of blue numbers**. We get a square number by multiplying a number by itself. In the 44 club, the new square number is **36**. Which other square numbers do you already know?

| x  | 0 | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9   | 10  | 11  | 12  |
|----|---|----|----|----|----|----|----|----|----|-----|-----|-----|-----|
| 0  | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0   | 0   | 0   | 0   |
| 1  | 0 | 1  | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9   | 10  | 11  | 12  |
| 2  | 0 | 2  | 4  | 6  | 8  | 10 | 12 | 14 | 16 | 18  | 20  | 22  | 24  |
| 3  | 0 | 3  | 6  | 9  | 12 | 15 | 18 | 21 | 24 | 27  | 30  | 33  | 36  |
| 4  | 0 | 4  | 8  | 12 | 16 | 20 | 24 | 28 | 32 | 36  | 40  | 44  | 48  |
| 5  | 0 | 5  | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45  | 50  | 55  | 60  |
| 6  | 0 | 6  | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54  | 60  | 66  | 72  |
| 7  | 0 | 7  | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 63  | 70  | 77  | 84  |
| 8  | 0 | 8  | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72  | 80  | 88  | 96  |
| 9  | 0 | 9  | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81  | 90  | 99  | 108 |
| 10 | 0 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90  | 100 | 110 | 120 |
| 11 | 0 | 11 | 22 | 33 | 44 | 55 | 66 | 77 | 88 | 99  | 110 | 121 | 132 |
| 12 | 0 | 12 | 24 | 36 | 48 | 60 | 72 | 84 | 96 | 108 | 120 | 132 | 144 |

If you find it hard to remember  $6 \times 6 = 36$ , don't worry - you already know what 5 lots of 6 are (30). Now just add one more 6 = 36!

| Interactive Multiplication Chart |   |   |    |    |    |    |    |    |    |    |
|----------------------------------|---|---|----|----|----|----|----|----|----|----|
| X                                | 0 | 1 | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  |
| 0                                | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| 1                                | 0 | 1 | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  |
| 2                                | 0 | 2 | 4  | 6  | 8  | 10 | 12 | 14 | 16 | 18 |
| 3                                | 0 | 3 | 6  | 9  | 12 | 15 | 18 | 21 | 24 | 27 |
| 4                                | 0 | 4 | 8  | 12 | 16 | 20 | 24 | 28 | 32 | 36 |
| 5                                | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 |
| 6                                | 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54 |
| 7                                | 0 | 7 | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 63 |
| 8                                | 0 | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 |
| 9                                | 0 | 9 | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81 |

Look at the dark grey boxes in the grid.

The first shows that  $1 \times 6 = 6$ .

The second shows that  $5 \times 6 = 30$ .

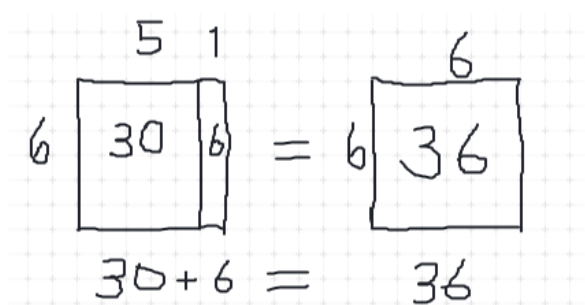
*Both of these facts are **easy** and you already know them!.*

If you add 1 lot of 6 and 5 lots of 6, you have 6 lots of 6!!

So now just add both products together:

**$6 + 30 = 36$ ! (shown in the third dark grey box)**

Here is the **same idea** shown as an area model:



**FACT 5**  $6 \times 8 = 48$  There are lots of different ways of working out  $6 \times 8$ . Here are a few:

# 6 x 8

Let's practice **Using 5** to solve  $6 \times 8$ .

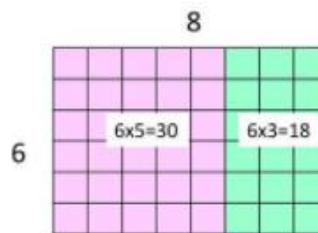
Where do you see  $6 \times 5$  in the model?

How does  $6 \times 5$  help you solve  $6 \times 8$ ?

$$6 \times 5 = 30$$

$$6 \times 3 = 18$$

$$6 \times 8 = 48$$

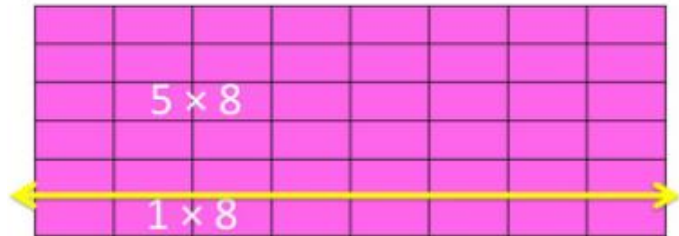


| Interactive Multiplication Chart |   |   |    |    |    |    |    |    |    |    |
|----------------------------------|---|---|----|----|----|----|----|----|----|----|
| X                                | 0 | 1 | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  |
| 0                                | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| 1                                | 0 | 1 | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  |
| 2                                | 0 | 2 | 4  | 6  | 8  | 10 | 12 | 14 | 16 | 18 |
| 3                                | 0 | 3 | 6  | 9  | 12 | 15 | 18 | 21 | 24 | 27 |
| 4                                | 0 | 4 | 8  | 12 | 16 | 20 | 24 | 28 | 32 | 36 |
| 5                                | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 |
| 6                                | 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54 |
| 7                                | 0 | 7 | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 63 |
| 8                                | 0 | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 |
| 9                                | 0 | 9 | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81 |

The two diagrams above show splitting up **8 lots of 6** into **3 lots of 6 (18)** and **5 lots of 6 (30)**. Now just **add** the products **18** and **30** together to get **48**.

What is another way to split the array to make it easier to work out  $6 \times 8$ ?

Example:  $6 \times 8 = (5 \times 8) + (1 \times 8)$

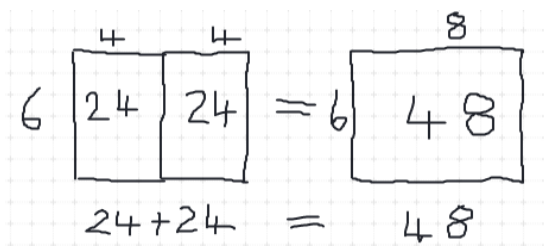


In the example above, you already know that  $5 \times 8 = 40$ , and  $1 \times 8 = 8$ , so you can easily add 40 and 8 together to make 6 lots of 8 which is 48!

You could also split it up into **4 lots of 6** and another **4 lots of 6**.

**$4 \times 6 = 24$**  and another  **$4 \times 6 = 24$** .

Now just add **24** and **24** to get **48**.



**FACT 6**  $7 \times 6 = 42$  or  $6 \times 7 = 42$

Again, we can make this easier for ourselves by thinking about what we already know.

You already know 7 lots of 3 are 21 ( $7 \times 3 = 21$ ) *which is the same as* 3 lots of 7 are 21 ( $3 \times 7 = 21$ ).

So you could split **6 lots of 7** up into **3 lots of 7** and another **3 lots of 7**..

**$3 \times 7 = 21$**  and another  **$3 \times 7 = 21$** .

Now just add **21** and another **21** to get **42**.

Or, use **2 lots of 6** and **5 lots of 6** to make a total of **7 lots of 6**

$$2 \times 6 = 12 \text{ and } 5 \times 6 = 30$$

Now just add **12** and **30** to get **42**.

$$12 + 30 = 42$$

| Interactive Multiplication Chart |   |   |    |    |    |    |    |    |    |    |
|----------------------------------|---|---|----|----|----|----|----|----|----|----|
| X                                | 0 | 1 | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  |
| 0                                | 0 | 0 | 0  | 0  | 0  | 0  | 0  | 0  | 0  | 0  |
| 1                                | 0 | 1 | 2  | 3  | 4  | 5  | 6  | 7  | 8  | 9  |
| 2                                | 0 | 2 | 4  | 6  | 8  | 10 | 12 | 14 | 16 | 18 |
| 3                                | 0 | 3 | 6  | 9  | 12 | 15 | 18 | 21 | 24 | 27 |
| 4                                | 0 | 4 | 8  | 12 | 16 | 20 | 24 | 28 | 32 | 36 |
| 5                                | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 |
| 6                                | 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54 |
| 7                                | 0 | 7 | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 63 |
| 8                                | 0 | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 |
| 9                                | 0 | 9 | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81 |

**You have now looked at ALL 6 new facts for the 44 club. Good luck and keep practising!**