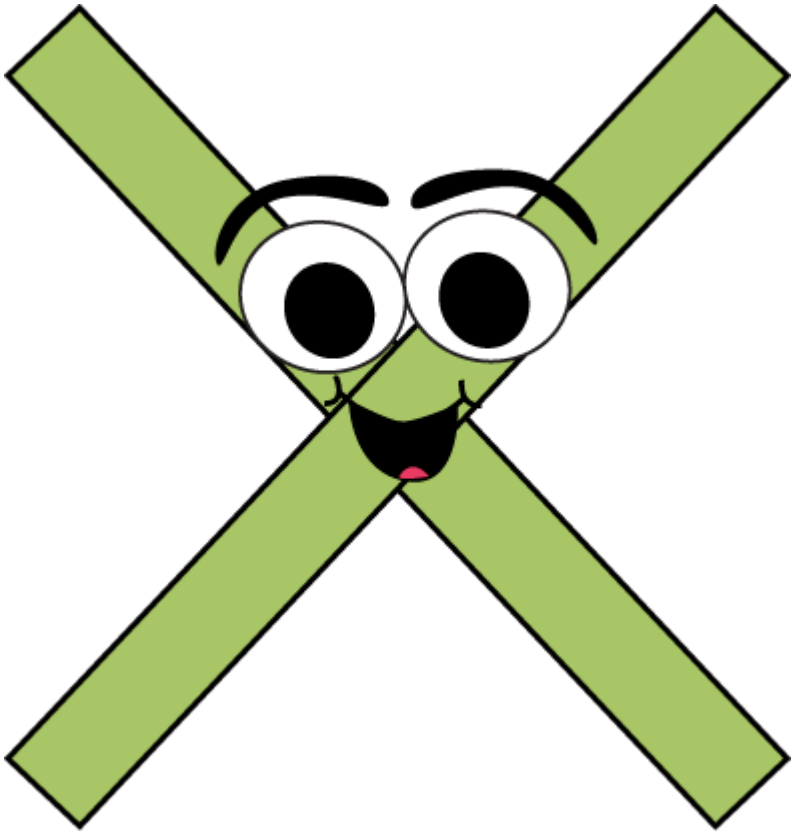
Tips and ideas for learning the multiplication tables



Tips and ideas for learning times tables

Using a multiplication grid (up to 10 × 10)

×	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Patterns
Get children to notice the patterns in the multiplication tables:

- The numbers in the section to the right of the diagonal (white squares) are the same as in the section to the left of the diagonal. Or, in other words, the numbers in the darker shaded section are repeated in the lighter shaded section.

- The 10 × table is just the 10s in order (10, 20, 30, 40 and so on).

- The 5 × table has numbers ending in 5 and 0 alternately, while the first digit increases every 2 numbers.

- The 9 × table has the units decreasing by 1 and the 10s increasing by 1 each time (up to 10 × 9)

- The numbers in the 3 x table have the sum of their digits coming to 3, then 6, then 9. This pattern repeats throughout the table: e.g. 12: 1 + 2 = 3; 15: 1 + 5 = 6, 18: 1 + 8 = 9.

Tips for remembering the multiplication tables

The 1 × table

1 × 1 = 1
2 × 1 = 2
3 × 1 = 3
4 × 1 = 4
5 × 1 = 5
6 × 1 = 6
7 × 1 = 7
8 × 1 = 8
9 × 1 = 9
10 × 1 = 10

The 2 × table

1 × 2 = 2
2 × 2 = 4
3 × 2 = 6
4 × 2 = 8
5 × 2 = 10
6 × 2 = 12
7 × 2 = 14
8 × 2 = 16
9 × 2 = 18
10 × 2 = 20

Have a look at these timesavers.

A number is even when it can be divided by two without a remainder.

2 divided by 2 is 1.
10 divided by 2 is 5.
All even numbers can be divided by 2.

To find out if a number is in the 2 × table, look at the digit at the end.

If a number ends in 0, 2, 4, 6, or 8 it is even and is a multiple of 2.
1,357,318 is a multiple of 2 because the digit at the end is 8.

Multiplying a number by 2 is the same as doubling it.
Double 6 is the same as 6 × 2, which equals 12.

Dividing a number by 2 is the same as halving it.
Half of 10 is the same as 10 ÷ 2 which equals 5.

The 3 × table

1	×	3	=	3
2	×	3	=	6
3	×	3	=	9
4	×	3	=	12
5	×	3	=	15
6	×	3	=	18
7	×	3	=	21
8	×	3	=	24
9	×	3	=	27
10	×	3	=	30

Have a look at these timesavers.
There's a clever trick you can use to find out if a number is in the 3 × table. Add up the digits of the number you want to find out about - this is called finding the digit sum. **If the digit sum is 3, 6, or 9**, **then you know that it's in the 3 × table.**

Let's look at **15.**

The digits are **1** and **5**.
Add those together and you get **6**.
1 + 5 = 6.

So 15 is in the 3 × table.

Now let's look at a bigger number: **156**.

The digits are **1, 5 and 6**.
Add 1 + 5 + 6 and you get **12.**

Now add up the digits 1 and 2 and you get 3.

So 156 is in the 3 × table.

This trick always works, even with a really big number like 12,346,911.

Just add up the digits:
1 + 2 + 3 + 4 + 6+ 9 + 1 + 1 = 27
then add 2 + 7 = 9

So 12,346,911 is in the 3 × table.

The 4 × table

1	×	4	=	4
2	×	4	=	8
3	×	4	=	12
4	×	4	=	16
5	×	4	=	20
6	×	4	=	24
7	×	4	=	28
8	×	4	=	32
9	×	4	=	36
10	×	4	=	40

Have a look at these timesavers.

All the numbers in the 4 × table are **even - they end with 0, 2, 4, 6 or 8.**

You can work out a 4 × table calculation by doubling the number twice.
7 × 4 is the same as 7 × 2 × 2
7 × 2 = 14, then 14 × 2 = 28

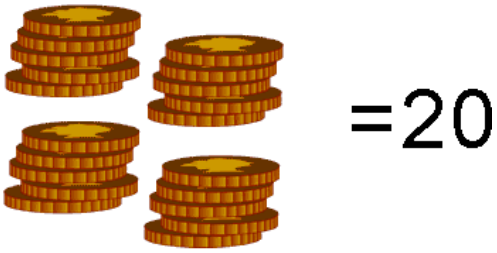
Look at the **last 2 digits** of the number you want to find out about. If they are a multiple of 4, then the **whole** number is also a multiple of 4.

Let's look at the number **116**. This is a multiple of 4 because **16 is in the 4 × table.**

You can reverse the calculation if that makes it easier. Have a look at these coins:
There are 5 piles with 4 coins in each.
This is 5 lots of 4 or 5 × 4.

Count them up - there are 20.

You could also have 4 piles with 5 coins in each:
4 lots of 5 or 4 × 5.



The number of coins is the same.

The 5 × table

1	×	5	=	5
2	×	5	=	10
3	×	5	=	15
4	×	5	=	20
5	×	5	=	25
6	×	5	=	30
7	×	5	=	35
8	×	5	=	40
9	×	5	=	45
10	×	5	=	50

Have a look at this timesaver.

This is an easy one. **All multiples of 5 end in a 5 or a 0**.

So 4,320 is in the 5 × table because it ends in a 0.

55,552 is not in the 5 × table because it ends in a 2.

5 is half of 10, so if you want to know what 5 × a number is you could multiply it by 10 and then work out half of the answer.

10 × 6 = 60, so 5 × 6 = half of 60 = 30

The 10 × table

1	×	10	=	10
2	×	10	=	20
3	×	10	=	30
4	×	10	=	40
5	×	10	=	50
6	×	10	=	60
7	×	10	=	70
8	×	10	=	80
9	×	10	=	90
10	×	10	=	100

Have a look at this timesaver.

This is another easy one.

Numbers that are **multiples of 10 always end in a 0:** 10, 20, 30, 40, 50, 60, 70, and so on.

The 6 × table

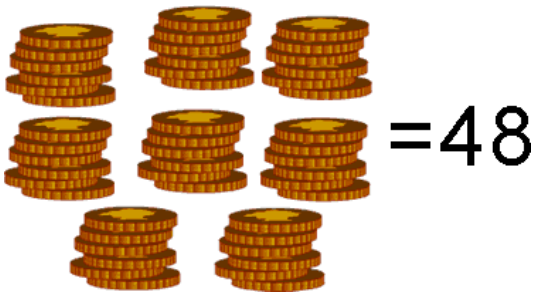
1	×	6	=	6
2	×	6	=	12
3	×	6	=	18
4	×	6	=	24
5	×	6	=	30
6	×	6	=	36
7	×	6	=	42
8	×	6	=	48
9	×	6	=	54
10	×	6	=	60

Have a look at these timesavers.

There's no easy trick for finding out if a number is in the 6 × table, but here are some tips:

- All the numbers in the 6 × table are even - they end with 0, 2, 4, 6 or 8.
- They are all a multiple of 3; they can be divided by 3.
- The digit sum is always 3, 6 or 9
- **You can work out a 6 × calculation by multiplying the number by 3 (tripling it) and then doubling your answer**
  5 × 6 is the same as 5 × 3 = 15, then 15 × 2 = 30.
  (You can also do this the other way round: 5 × 6 = 5 × 3 × 2 = 15 × 2 = 30.)

You can reverse the calculation if that makes it easier. Have a look at these coins.
There are 8 piles with 6 coins in each.
This is 8 lots of 6 or 8 × 6.



Count them up - there are 48.
Now reverse the calculation so you have 6 piles with 8 coins in each - 6 lots of 8 or 6 × 8.
The number of coins is the same.

The 7 × table

1	×	7	=	7
2	×	7	=	14
3	×	7	=	21
4	×	7	=	28
5	×	7	=	35
6	×	7	=	42
7	×	7	=	49
8	×	7	=	56
9	×	7	=	63
10	×	7	=	70

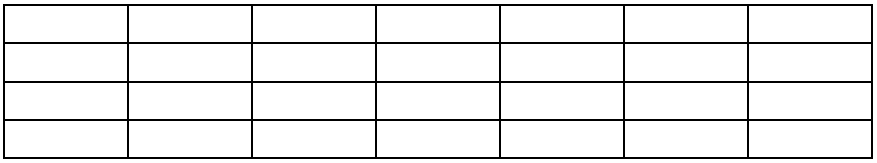
Have a look at these timesavers.

There's no easy trick for finding out if a number is in the 7 × table. But there is a way of remembering the answer to 7 × 8:

7 × 8 = 56. Just remember the sequence: 5, 6, 7, and 8.

Try reversing the order if you're having problems. Remember that 7 × 5 is the same as 5 × 7 (= **35**) so you can use the 5 x table if you know it better.

Make rectangular patterns on a piece of paper to help you. Have a look at this one.



4 rows of 7, which is the same as 4 × 7.
Count them up - there are 28.
It is the same as 7 × 4: 7 rows of 4.

The 8 × table

1	×	8	=	8
2	×	8	=	16
3	×	8	=	24
4	×	8	=	32
5	×	8	=	40
6	×	8	=	48
7	×	8	=	56
8	×	8	=	64
9	×	8	=	72
10	×	8	=	80

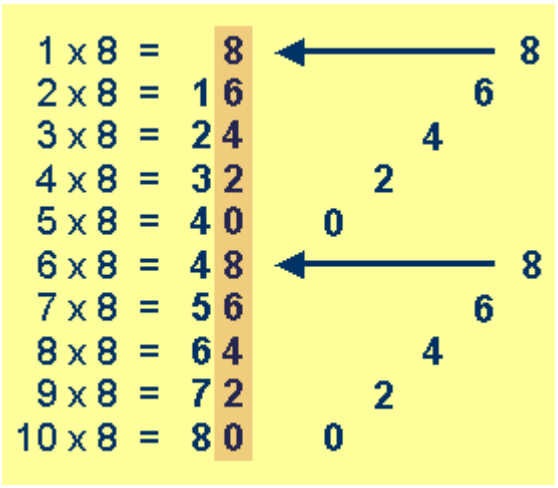
Have a look at these timesavers.

The numbers in the 8 × table are always even. This means they can be divided by 2 without remainder. If it's an **odd** number then it is not in the 8 × table!

Have a look at the 8 × table again. The unit digits have a regular pattern - they **go down in 2s**.

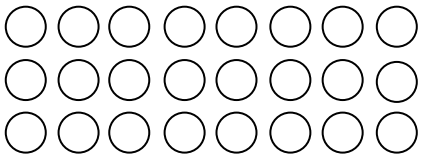
Try reversing the order if you're having problems.

8 × 4 is the same as 4 × 8 (= **32**) so you can use the
4 × table if you know it better.



You can make rectangular patterns on a piece of paper to help you.

Have a look at this one: 3 rows of 8 which is the same as 3 × 8.



Count them up - there are 24. It is **the same as 8 × 3** - 8 rows of 3.

If you want to multiply by 8 you can double a number 3 times.

For example: 8 × 6: **double 6 = 12**
double 12 = 24
double 24 = 48
8 × 6 = 48

The 9 × table

1	×	9	=	9
2	×	9	=	18
3	×	9	=	27
4	×	9	=	36
5	×	9	=	45
6	×	9	=	54
7	×	9	=	63
8	×	9	=	72
9	×	9	=	81
10	×	9	=	90

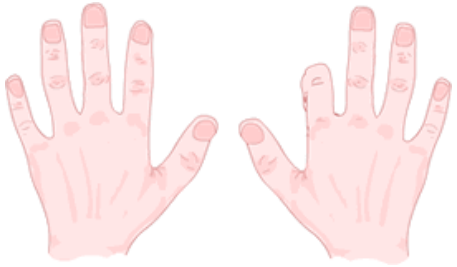
Have a look at these timesavers.

Look at the numbers on the right-hand side of the table above. Notice how the **tens go up** but the **units go down**.

There's a good way to remember this table. All the digits in the 9 × table add up to 9.

18 = 1 + 8 = **9**
27 = 2 + 7 = **9**
36 = 3 + 6 = **9**

What's **9 × 7**? You can use the **9 method** here.
Hold out all 10 fingers and lower or bend the **7th** finger.
There are 6 fingers to the left (6 tens) of the bent finger and 3 fingers to its right (3 units). The answer is 63.



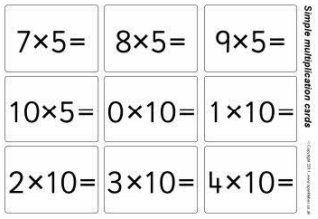
Try reversing the order if you're having problems. 9 × 8 is the same as 8 × 9 (= 72) so you can use the 8 × table if you know it better.

Look at the pattern to the right: the units' column goes **down** one at a time and the tens column goes **up**.
You can also see how the 9 × table reverses itself!

(1	×	9)	09	~	90	(10	×	9)
(2	×	9)	18	~	81	(9	×	9)
(3	×	9)	27	~	72	(8	×	9)
(4	×	9)	36	~	63	(7	×	9)
(5	×	9)	45	~	54	(6	×	9)
(6	×	9)	54	~	45	(5	×	9)
(7	×	9)	63	~	36	(4	×	9)
(8	×	9)	72	~	27	(3	×	9)
(9	×	9)	81	~	18	(2	×	9)
(10	×	9)	90	~	09	(1	×	9)

Activities & games to support the learning of times tables

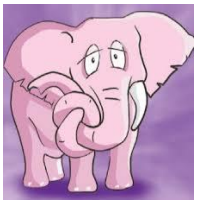
1) **Make a set of flash cards**. Write the problem, like 4 x 9, on the front and the answer, 36, on the back. The act of writing out the multiples will provide another repetition/reinforcement. Use a timer to see how many cards they can go through in a minute. Can they beat that score tomorrow?



2) **Grab a deck of cards**. You each get half the deck to place face down in front of you - don't look at the cards! Each player flips their first card simultaneously - the first person to say the answer based on the two numbers gets both cards (the object of the game is to win them all). If the two of you flip a 7 and a 5, the answer to shout out is 35. For Jacks, Queens, and Kings, you can use 11, 12, and 13, use them as 0's, or take them out entirely.

3) **Throw the dice -** This can be played with one, two or more children. Throw two dice and ask the children to write down the multiplication. If you want to work on tables higher than one to six, use small stickers to change the numbers.
Who can calculate the fastest? Who can get the most answers in a given time?

4) **Memory game -** make some numbers cards and write down the corresponding tables calculations onto cut-out card. Make sure the number cards and the tables calculation cards are different shapes so your child can distinguish a calculation from a potential answer. Lay all cards upside-down on the floor or table. First your child has to turn over one of the table calculation cards, and then they need to find the number card that is the answer to the calculation. If cards match they keep them and if not they are turned over again for the next player. The winner is the player with the most cards once all the overturned cards are gone. Try and remember where cards are placed.



5) **Use exercise to make learning fun** - Getting children active is proven to help learning, so instead of just asking your child to recite their tables, encourage them to jog on the spot and do different aerobic moves in time to chanting them. As exercise helps mood and concentration, it should make the sessions more fun and effective.

6) **SNAP** – Make some times tables snap cards (calculation cards and answer cards). Shuffle and share cards between players. The players keep their cards face down in a stack. One by one, they take the top card from their stack, and place it on a pile in the middle. When the card just placed matches the one before it, the players should call **SNAP!** The first player to do this gets to keep all the cards in the pile.
    a. Some matches will be easy - for example, if **24** is played on top of **24**.
    b. Other matches will require knowledge of times tables - for example, if **7x7** is played on top of **49**.
    c. The most interesting matches of all will be when two matching question cards are played, for example if **4x9** is played on top of **12x3**.

Times-tables crossword

Complete the crossword by writing the answers in **words.**

Across

1. 2 × 6 = ?
4. 6 × 7 = ?
5. 5 × 6= ?
7. 8 × ? = 40
8. 5 × ? = 45

Down

1. 8 × ? = 16
2. 10 × 6 = ?
3. 2 × 7 = ?
4. double 2
5. 4 × 5 = ?
6. 4 × ? = 32