# Times tables: why do we learn them?

Play a little game with your son or daughter, counting up to 20 and seeing how long it takes. You might like to use a watch with a seconds hand, or a stopwatch if your child likes such things. Then have them ask you 2 x 10. When you give them the answer, they'll see immediately why we learn tables. **It saves time.**

Early maths starts with counting, and the way we organise it almost certainly stems from our first mathematical aid, our fingers. Arithmetic is an extension of counting – learning the most efficient ways of calculating allows us to deal with larger numbers, and eventually with much larger numbers, without the slow process of moving backwards and forwards, one number at a time.

# We need tables for division

Division calculations begin with a large number and in effect take bites out of it, beginning with the biggest bite possible.

Divide 36 by 5, for example.

Knowing our tables lets us take a big bite of 7 x 5 out of it, leaving 1 as a remainder.

If we don't know the tables, we need much more complicated and time-consuming procedures to cut the number into smaller pieces, with the result that division is a big weakness in school arithmetic.

# Algebra also uses a great deal of division and multiplication

Most of the numbers used in beginners' algebra are small, but knowing tables automatically – that is, without having to start at the beginning and count through each item – frees all our attention so that we can focus on whatever problem we have to solve.

# To chant or not to chant?

For a long time, and when I was at school, children learned tables by standing up each morning and reciting a full set out loud. No-one ever tested whether this was the best way to learn tables, but it seemed to work for most of the people most of the time, and is still some teachers' – and some maths advisers' – favourite method.

Why does it work? Eric Kandel, who won the Nobel Prize in 2000 for his work on memory, showed that repeated stimulus (for example, through repetition) enables brain cells to grow and make new connections.

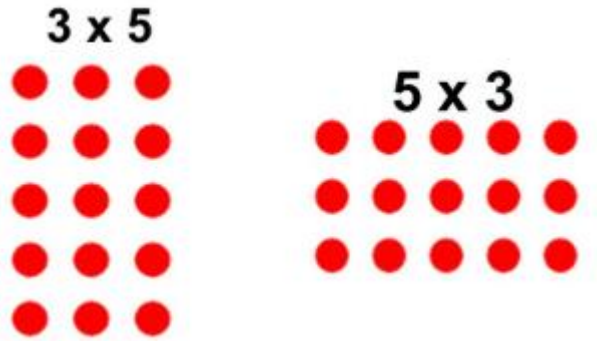
# How we teach tables at Tonwell?

Reception

- Stacking objects in 2s
- Counting songs in 2s, 5s and 10s

KS1

- Visual representation using arrays
- Times tables booklets sent home
- Tests on Fridays



# How we teach tables at Tonwell?

LKS2

- Times tables are sent home for homework each week.
- Tests on Fridays or whenever there is a spare 5 minutes
- Practise on whiteboards for Early Morning Work

UKS2

- Timed tables tests for homework.
- Times tables challenges in class
- Practise on whiteboards for Early Morning Work

# Times Tables Booklet

**Multiplication Tables Awards**

The following awards can be given to individual pupils when tested by an adult:

**RED**

For being able to say a complete multiplication table without hesitation

*e.g. "Two, four, six, eight, ten…"*

**ORANGE**

For being able to give the product of numbers multiplied together

*e.g. Q – "What are four fives?"*

**GREEN**

For giving facts when presented with the product only

*e.g. Fifty-six = seven eights / eight sevens*

**AND** for knowing related division facts

*e.g. Fifty-six divided by seven = eight*

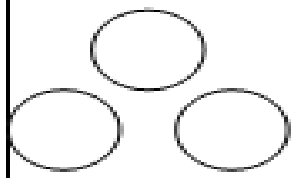
Tonwell St Mary's School

MULTIPLICATION FACTS (TABLES)
Record of Achievement

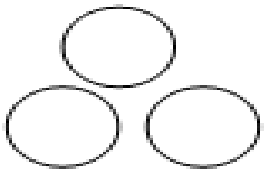
Name……

# Times Tables Booklet

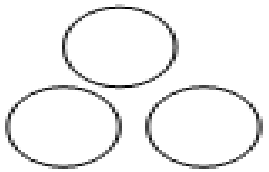
1 x 1 = 1
2 x 1 = 2
3 x 1 = 3
4 x 1 = 4
5 x 1 = 5
6 x 1 = 6
7 x 1 = 7
8 x 1 = 8
9 x 1 = 9
10 x 1 = 10
11 x 1 = 11
12 x 1 = 12



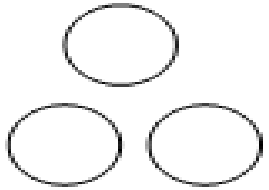
1 x 2 = 2
2 x 2 = 4
3 x 2 = 6
4 x 2 = 8
5 x 2 = 10
6 x 2 = 12
7 x 2 = 14
8 x 2 = 16
9 x 2 = 18
10 x 2 = 20
11 x 2 = 22
12 x 2 = 24



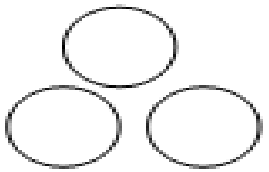
1 x 3 = 3
2 x 3 = 6
3 x 3 = 9
4 x 3 = 12
5 x 3 = 15
6 x 3 = 18
7 x 3 = 21
8 x 3 = 24
9 x 3 = 27
10 x 3 = 30
11 x 3 = 33
12 x 3 = 36



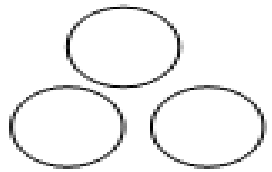
1 x 4 = 4
2 x 4 = 8
3 x 4 = 12
4 x 4 = 16
5 x 4 = 20
6 x 4 = 24
7 x 4 = 28
8 x 4 = 32
9 x 4 = 36
10 x 4 = 40
11 x 4 = 44
12 x 4 = 48



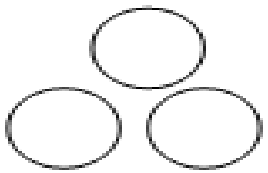
1 x 5 = 5
2 x 5 = 10
3 x 5 = 15
4 x 5 = 20
5 x 5 = 25
6 x 5 = 30
7 x 5 = 35
8 x 5 = 40
9 x 5 = 45
10 x 5 = 50
11 x 5 = 55
12 x 5 = 60



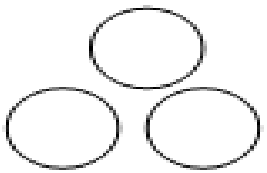
1 x 6 = 6
2 x 6 = 12
3 x 6 = 18
4 x 6 = 24
5 x 6 = 30
6 x 6 = 36
7 x 6 = 42
8 x 6 = 48
9 x 6 = 54
10 x 6 = 60
11 x 6 = 66
12 x 6 = 72



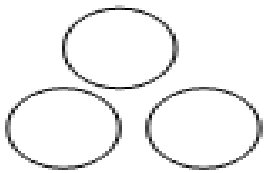
1 x 7 = 7
2 x 7 = 14
3 x 7 = 21
4 x 7 = 28
5 x 7 = 35
6 x 7 = 42
7 x 7 = 49
8 x 7 = 56
9 x 7 = 63
10 x 7 = 70
11 x 7 = 77
12 x 7 = 84



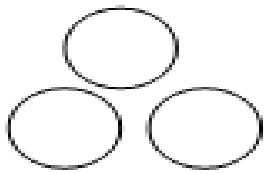
1 x 8 = 8
2 x 8 = 16
3 x 8 = 24
4 x 8 = 32
5 x 8 = 40
6 x 8 = 48
7 x 8 = 56
8 x 8 = 64
9 x 8 = 72
10 x 8 = 80
11 x 8 = 88
12 x 8 = 96



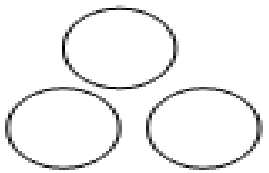
1 x 9 = 9
2 x 9 = 18
3 x 9 = 27
4 x 9 = 36
5 x 9 = 45
6 x 9 = 54
7 x 9 = 63
8 x 9 = 72
9 x 9 = 81
10 x 9 = 90
11 x 9 = 99
12 x 9 = 108



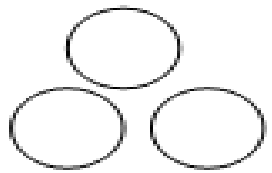
1 x 10 = 10
2 x 10 = 20
3 x 10 = 30
4 x 10 = 40
5 x 10 = 50
6 x 10 = 60
7 x 10 = 70
8 x 10 = 80
9 x 10 = 90
10 x 10 = 100
11 x 10 = 110
12 x 10 = 120



1 x 11 = 11
2 x 11 = 22
3 x 11 = 33
4 x 11 = 44
5 x 11 = 55
6 x 11 = 66
7 x 11 = 77
8 x 11 = 88
9 x 11 = 99
10 x 11 = 110
11 x 11 = 121
12 x 11 = 132



1 x 12 = 12
2 x 12 = 24
3 x 12 = 36
4 x 12 = 48
5 x 12 = 60
6 x 12 = 72
7 x 12 = 84
8 x 12 = 96
9 x 12 = 108
10 x 12 = 120
11 x 12 = 132
12 x 12 = 144



# What can you do at home?

Useful items to help your help your child with times tables at home include:

- A **stack of coins** – at least a dozen each of 1p, 5p and 10p, and preferably two dozen 2p, will let you make up a full set of tables to 12x12 for the occasions when your child might need to go back and check by counting. No cost, beyond the time it takes to collect up the change.
- A **pack of cards** – take out the aces and Kings, count Jack as 11 and Queen as 12, and you can practise the full range of tables by dealing your child two cards and asking them to multiply them.

# What can you do at home?

- A **pack of blank cards** (make them out of cardboard or paper, or buy premade versions) These are infinitely versatile. You can write down whatever items your child has problems with and make **Pelmanism sets** with questions and answers. (Write the questions and answers on different cards. Shuffle and turn the cards face down. The child has to turn over a card, then turn over the matching card. You can start with a small number of sets and build up.) How many card questions can your child answer correctly against the clock? Boys very much enjoy this, but so do most girls.
- **The internet –** just type in **online times tables games** or **worksheets** and there are many sites to choose from

# What can you do at home?

What websites and worksheets can't do is explain how tables operate, or feed back to a child why they've made a mistake, and how to avoid it next time. So, best to keep them for practice and speeding up after your child has learned a table.

Useful websites include:

- uk.mathletics.com
- www.ixl.com/math
- www.topmarks.co.uk/.../multiplication-and-division
- www.timestables.co.uk
- www.bbc.co.uk/skillswise/game/ma13tabl-game-tables-grid-find
- www.primaryhomeworkhelp.co.uk/.../timestable/interactive.htm

# Statutory Tests for Year 4 pupils

The information leaflet provided on these tests is a very clear explanation.

https://www.theschoolrun.com/new-primary-school-times-tables-tests-explained

# Multiplication tables check: a parents' guide

All Y4 children will have their multiplication skills formally tested from 2020. We explain what parents need to know.

Primary-school children are expected to know all their times tables up to 12x12. Under the current National Curriculum, children are supposed to know their times tables by the end of Y4, but they are not formally tested on them other than through multiplication questions in the Year 6 maths SATs.

## Who will sit the times tables check?

The check will be introduced in English schools only. It will be taken by children in Year 4, in the summer term (in June). In June 2019 the multiplication check will be voluntary: schools will be able to decide whether to administer it or not. In June 2020 it will become compulsory for all English schools.

## How will children be tested?

Children will be tested using an on-screen check, where they will have to answer multiplication questions against the clock on a computer. The test will last no longer than 5 minutes and is similar to other tests already used by primary schools. Children's answers will be marked instantly. This will be the first time that the Department for Education (DfE) has used computerised tests in primary schools.

## What if a child doesn't do well in the check?

There will be no "pass mark" and no child will "fail" the test. At the moment we don't know how many questions children will be asked, but it's likely to be 20 or 25, all on the multiplication tables up to 12x12. Multiplication facts will be the only things tested (there will be no problem-solving in the check).

The DfE says the purpose of the check is to help teachers identify which children are falling behind and target extra support where they're not being given a chance to succeed.

School-level results won't be made publicly available or be used in league tables.

## Times tables learning in primary school

- Year 1 children are taught counting up in 2s, 5s and 10s (the simplest form of multiplication).
- Year 2 children are introduced to multiplication, division facts and repeated addition for numbers 2, 5 and 10.
- Year 3 is a crucial year for times tables learning. Children learn multiplication facts for the 3, 4 and 8 times tables.
- Year 4 is a 'completing' year for all multiplication facts up to 12 x 12.
- Children are expected to be really confident in all their times tables (up to the 12 times table) by the start of Y5.

**Year 5 children are expected to be confident in all multiplication tables up to 12x12**



## How can you help your child practise their times tables?

Because the National Curriculum for maths is so explicit on this, there is an expectation that parents will help the Y4 children learn their times tables at home and not rely exclusively on school to bring them up to speed.

Some of the techniques you can use include:

- Practising times tables by rote (a bit-task-based chanting of each multiplication table).
- Asking your child times tables questions out of order – such as 'What's 11x12?' 'What's 9x6?'
- Asking your child the related division facts: 'What's 8 + 4? What's 9 ÷ 6?'
- Using arrays to help your child memorise times tables – you can use the objects like Smarties or Lego bricks to make it more entertaining.
- Using apps and games to help build speed.
- Singing times tables songs (there are loads online).

## Why do we learn times tables?

In primary school, times-table knowledge is vital for quick mental maths calculations and problem solving, as well as for many of the topics children learn in KS2 (division, fractions, percentages) in secondary school, good multiplication skills are a great help when starting to learn algebra, as well as chemistry, physics, biology and ICT, all of which depend heavily on maths knowledge.

## Will all children take the multiplication check?

The check will be compulsory in English schools from 2020 but teachers are likely to administer it in a very low-key way, as part of lessons. Some children won't even be aware they've taken an official test!

Find lots more tips and resources for parents at https://www.theschoolrun.com/maths/times-tables