# Number Knowledge, Multiplication and Division

## Number Knowledge

Having a good knowledge of number is crucial for building confidence in maths. It allows children to focus on the mathematical problem without getting distracted by simple calculations. To better illustrate this, consider the following example:

*I had a jar of 56 jelly beans. I added 16 more jelly beans to the jar. Then I shared the jelly beans evenly between 8 party bags. How many jelly beans did each bag have?*

We can see that there is an addition followed by a division calculation. Children with good number knowledge will be able to use mental addition to add 56 and 16 (count on in tens from 50 to 60 and then recognize that 6+6 is 12). The second operation is easy if children have good times table knowledge (72 beans shared amongst 8 party bags = 9 per bag).

However, children can quickly become confused if they have to focus on each calculation, rather than the overall problem. Therefore, they need a solid understanding of counting on from a given number and number bonds. Additionally, children must have a good times table knowledge up to 12 x 12.

## Counting

Whilst this is a basic skill, it is fundamental to building a good understanding of maths. It is also a really easy one to practise through play – a great game for the car. A simple game is tennis. Choose a number to start from and how many you will count on each time, eg start from 7 and count in 10s. The first player starts on 7 with the next player adding 10 and so on. You can play with 2 or more players and make it as difficult as you want. It is also great practice for times tables, eg start at 8 and count on in 8s.

## Number Bonds

Establishing a good knowledge of number bonds increases confidence and allows pupils to perform calculation faster. Children may start with number bonds of 10 (10+0, 9+1, 8+2 etc) before going on to number bonds of 20. Many though do not have secure enough knowledge of the number bonds within the range, eg **5+2** and 3 = 10. Again, simple games can help encourage children to think about number. How many ways can we make 10 using addition? What are the number bonds of 17?

## Times Tables

The fluent recall of times tables facts is something many children struggle with. Tables that were memorised last year can seem to have disappeared from their memory the following year, so they need to be regularly revisited and applied. The National Curriculum gives the minimum times tables knowledge expectations for each year as follows:

| By the end of Year 2 | By the end of Year 3 | By the end of Year 4 | By the end of Year 5 | By the end of Year 6 |
|---|---|---|---|---|
| 2, 5, 10 including division facts. | 2, 3, 4, 5, 8, 10 including division facts. | All times tables up to 12 x 12 with division facts. | Same as Year 4 and related questions e.g. 1/9 of 63 is 7. Knowledge of prime numbers to 19. | Same as Year 5 and a knowledge of prime numbers below 100. Identify common factors and multiples. |

While some children may find learning all 12x12 facts and the associated division facts daunting, there are in fact very few to learn in isolation when key tables are mastered!

Multiplication is commutative, so you can reverse the order of the numbers and the answer will still be the same. For example: 9x5=45 so 5x9=45.

So once pupils have learnt their 1, 2, 5 and 10 times tables, they only have half of the rest to learn (see the grid overleaf).

The following are useful weblinks:

https://www.timestables.co.uk/
https://www.transum.org/Tables/Square.asp?Level=2
https://www.oxfordowl.co.uk/for-home/at-school/subject-guides/maths-at-primary-school/

## Respect    Reflection    Responsibility    Resilience

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## Learning My Times Tables

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

Once you know your 1x, 2x, 5x and 10x you only have 36 more facts to learn.  Then you'll know your times tables up to 12x12.  Remember 3x4 is the same as 4x3.

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