Why learn number facts and times tables?

At Hurst Park, we place great emphasis on acquiring basic number facts, especially times tables.

However, one doesn't just learn facts for the sake of it. It paves the way to becoming a more fluent mathematician who can apply knowledge with increased certainty.

Having a quick, or even instant, recall of number and times tables facts gives you the ability to tackle a whole range of mathematical questions and topics with confidence.

In everyday life, we use our number and times tables facts and it is great if we can have these facts at our fingertips instead of having to work them out each time. Knowing answers to number and times tables questions can make more difficult maths less challenging.

The link between multiplication and division becomes much easier to appreciate if times tables knowledge is in place. Multiplication and division with larger numbers and decimals can be daunting but less so if the 'building blocks' of times tables are in place. 4 x 3 = 12 may seem a fairly basic fact but it can be used to generate 40 x 3 = 120, 4 x 30 = 120, 0.4 x 3 = 1.2, 12 ÷ 4 = 3, 1,200 ÷ 30 = 40, 120 ÷ 0.4 = 300 and so on.

Times tables facts are also essential when it comes to working with fractions, percentages and understanding algebraic expressions.

How does the Fast Maths work?

At Hurst Park, we value all of the support that parents can give to their children.
In the same way that input from home has a hugely positive impact upon children's reading, we feel that a significant difference can also be made by working together on times tables.

Each half term children will be allocated Key Instant Recall Facts (KIRFs) to practise and learn at home. These will be sent home HALF TERMLY and include practical ideas to assist your child in grasping the key facts. It is important that they know these thoroughly and are able to recall specific facts instantly.

Each child in Key Stages 1 and 2 has a personal challenge. This is to learn a particular number fact, times table, its related division facts or a combination of both. Once times tables up to 12x have been mastered, children are challenged to apply their knowledge through other mental calculation skills.

As children have a wide range of abilities in mathematics, it may be necessary to go to the previous year group target for some children or to extend other children by trying the target for the following year.

Most children will rapidly be able to locate the section of their KIRF which they need to focus on and where this is not the case, may be guided by their teacher and/or parent.

KIRFS are a way of helping your child to learn by heart, key facts and information of which they need to have instant recall of. The KIRFS indicate what needs to be learned but also contain helpful suggestions of ways in which you could make this learning interesting and relevant.

The challenge will take place on a set day each week depending upon the child's year group. This will be called the FAST Maths session. The children will initially play some FAST Maths games and then complete a test sheet in which questions are to be completed within a set time. This is 2 minutes for KS1 and 1 minute for KS2 for about 10 questions.

Challenge sheets will be reviewed by the teacher and, where appropriate, peers. If questions are all correct, a child can move onto the next challenge (as outlined below). Otherwise, practice continues with the current challenge. [Different challenge sheets are available for children repeating a challenge.] After each challenge, sheets are taken home and the focus of the following week's homework will be made clear to each pupil.

According to the year group and child, rewards are given for achievement in the Fast Maths challenge.

Careful teacher assessment will establish at which stage in the progression of challenges each child will start. This will vary according to age, ability and particular learning needs. For example, many children will begin with the addition and subtraction number facts (number bonds) before moving towards learning tables.

KS2 pupils may show a firm grasp of 2x, 5x and 10x tables so will begin further up the sequence of challenges.

Mathematics lessons cover a wide range of learning objectives and concepts, meaning that times tables will not always be an explicitly taught part of a child's week. However, the Fast Maths challenge ensures practice is maintained.

How can we practise at home?

Practising at home on the skills you work at in school can go a long way towards becoming an accomplished learner.

Everyone learns in different ways and times tables are no exception. So, choose the activities and strategies which will help you to learn best.

The following ideas all reinforce the approaches that are used at Hurst Park.

Having a visual representation is very important. Arranging objects into groups helps to make the connection with oral or written facts, such as 4 groups of 5 (or 4 x 5) below.
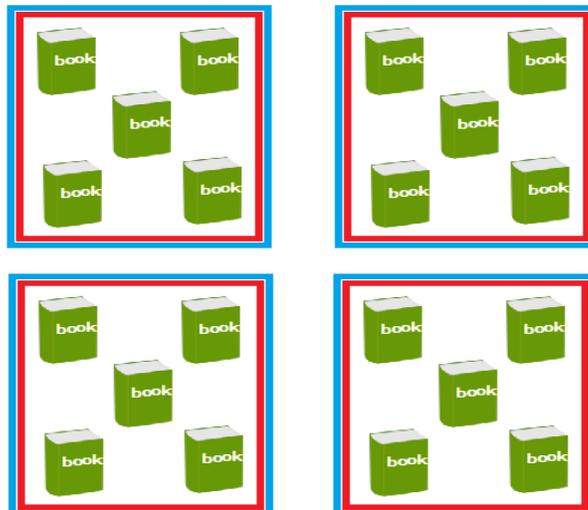
Also, it's handy to use a number line and make equal jumps related to the times table you're working on.
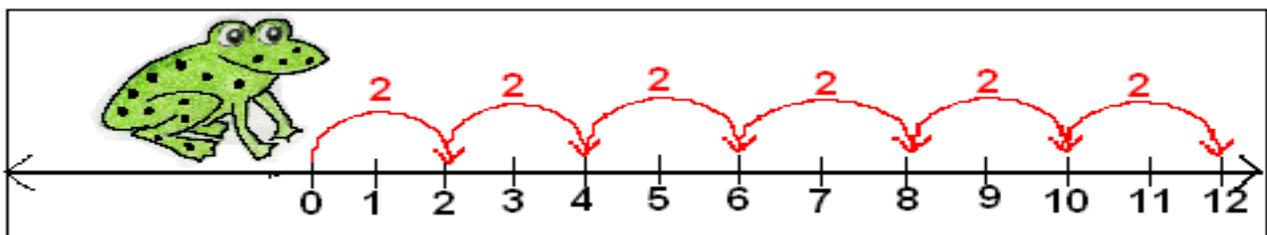
A times table grid provides a strong visual image and specific numbers can be highlighted to focus on a particular table or pattern.

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

Although chanting the answers to times tables: e.g. 3, 6, 9, 12, 15... is a step along the road to learning, remember that ultimately it's important to learn whole facts which relate to strings of numbers.: e.g. 1 x 3 = 3, 2 x 3 =6...This is far more meaningful if related to actual objects with a 'hands-on' approach.

Saying facts aloud can assist in moving newly-acquired information into the long-term memory.
One way of familiarising yourself is to count upwards rhythmically, emphasising the relevant numbers by shouting them out. For example, in practising the four times table, say 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, etc.

Studying, copying or writing from memory the facts related to a particular table will aid your recall. Charts such as the one below can be easily found online as well as those relating to individual times tables.

Times Tables 1 to 12

1 times table	2 times table	3 times table	4 times table
1 x 1 = 1	1 x 2 = 2	1 x 3 = 3	1 x 4 = 4
2 x 1 = 2	2 x 2 = 4	2 x 3 = 6	2 x 4 = 8
3 x 1 = 3	3 x 2 = 6	3 x 3 = 9	3 x 4 = 12
4 x 1 = 4	4 x 2 = 8	4 x 3 = 12	4 x 4 = 16
5 x 1 = 5	5 x 2 = 10	5 x 3 = 15	5 x 4 = 20
6 x 1 = 6	6 x 2 = 12	6 x 3 = 18	6 x 4 = 24
7 x 1 = 7	7 x 2 = 14	7 x 3 = 21	7 x 4 = 28
8 x 1 = 8	8 x 2 = 16	8 x 3 = 24	8 x 4 = 32
9 x 1 = 9	9 x 2 = 18	9 x 3 = 27	9 x 4 = 36
10 x 1 = 10	10 x 2 = 20	10 x 3 = 30	10 x 4 = 40
11 x 1 = 11	11 x 2 = 22	11 x 3 = 33	11 x 4 = 44
12 x 1 = 12	12 x 2 = 24	12 x 3 = 36	12 x 4 = 48

5 times table	6 times table	7 times table	8 times table
1 x 5 = 5	1 x 6 = 6	1 x 7 = 7	1 x 8 = 8
2 x 5 = 10	2 x 6 = 12	2 x 7 = 14	2 x 8 = 16
3 x 5 = 15	3 x 6 = 18	3 x 7 = 21	3 x 8 = 24
4 x 5 = 20	4 x 6 = 24	4 x 7 = 28	4 x 8 = 32
5 x 5 = 25	5 x 6 = 30	5 x 7 = 35	5 x 8 = 40
6 x 5 = 30	6 x 6 = 36	6 x 7 = 42	6 x 8 = 48
7 x 5 = 35	7 x 6 = 42	7 x 7 = 49	7 x 8 = 56
8 x 5 = 40	8 x 6 = 48	8 x 7 = 56	8 x 8 = 64
9 x 5 = 45	9 x 6 = 54	9 x 7 = 63	9 x 8 = 72
10 x 5 = 50	10 x 6 = 60	10 x 7 = 70	10 x 8 = 80
11 x 5 = 55	11 x 6 = 66	11 x 7 = 77	11 x 8 = 88
12 x 5 = 60	12 x 6 = 72	12 x 7 = 84	12 x 8 = 96

9 times table	10 times table	11 times table	12 times table
1 x 9 = 9	1 x 10 = 10	1 x 11 = 11	1 x 12 = 12
2 x 9 = 18	2 x 10 = 20	2 x 11 = 22	2 x 12 = 24
3 x 9 = 27	3 x 10 = 30	3 x 11 = 33	3 x 12 = 36
4 x 9 = 36	4 x 10 = 40	4 x 11 = 44	4 x 12 = 48
5 x 9 = 45	5 x 10 = 50	5 x 11 = 55	5 x 12 = 60
6 x 9 = 54	6 x 10 = 60	6 x 11 = 66	6 x 12 = 72
7 x 9 = 63	7 x 10 = 70	7 x 11 = 77	7 x 12 = 84
8 x 9 = 72	8 x 10 = 80	8 x 11 = 88	8 x 12 = 96
9 x 9 = 81	9 x 10 = 90	9 x 11 = 99	9 x 12 = 108
10 x 9 = 90	10 x 10 = 100	10 x 11 = 110	10 x 12 = 120
11 x 9 = 99	11 x 10 = 110	11 x 11 = 121	11 x 12 = 132
12 x 9 = 108	12 x 10 = 120	12 x 11 = 132	12 x 12 = 144

Just as important are the related division facts which are at the end of this document.

You may find songs and chants help you to remember facts. There are many examples online.

As you're working on a times table, learn the 5x and 10x facts early on: you can use these to help you reach other facts without having to start from the beginning.

For example, knowing that 5 x 4 = 20 can help you to reach 6 x 4 = 24; from 10 x 4 = 40, you can arrive at 9 x 4 = 36.

The example below shows how using known facts can help to work out 6 x 8.

5 x 8 = 40
so 6 x 8
should be
8 more or 48

3 eights =24
so 6 eights
should be
twice that or 48

6 x 8 = ?

4 sixes = 24
so 8 sixes
should be
twice that or 48

6 x 6 = 36
2 x 6 = 12
so 8 x 6 = 48

Try saying the facts for a times table backwards as well as forwards. If you can do this, you're well on your way towards being super confident.

Roll a die (or two and add them) or choose a playing card and then multiply by your chosen times table to practise your recall.

It's great to know that when you have learnt one multiplication fact, you've actually learnt two! Representing multiplication in arrays or using a two-shaded grid shows this connection nicely.

3 × 6 = 6 × 3
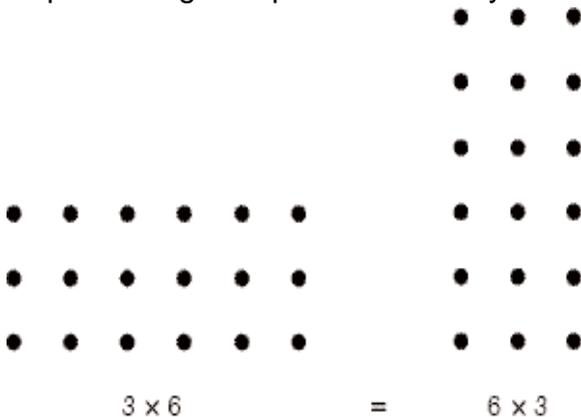
·	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	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

the same !

Making links between times tables can really speed up the process of learning and recalling facts. Doubling and halving can play a part here, linking 5x with 10x, 3x with 6x, 4x with 8x and so on. For example: 4 x 3 = 12 so 4 x 6 = 24; 8 x 10 = 80 so 8 x 5 = 40.

There are many online activities which can help you to become a times tables expert. Explore the web links provided for some fun and worthwhile practice. Let your teacher know of any other sites that you find useful.

Remember that learning a particular times table is not the end of the process, it's just the beginning! What you're aiming for is to memorise these facts. The grid below shows you that there are not as many as you might think.

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

Make sure you don't forget those crucial facts by practising regularly and applying your knowledge to larger numbers!

What is the sequence of challenges?

The following is a guide to the progression of the FAST Maths challenges.

Addition bonds of 5
Addition bonds of 6
Addition bonds of 7
Addition bonds of 8
Addition bonds of 9
Addition bonds of 10
Addition bonds to 15
Subtraction bonds up to 10
Addition and subtraction bonds up to 10
Addition bonds to 20
Subtraction bonds up to 20
Addition and subtraction bonds to 20
Addition bonds of 100
Subtraction bonds within 100

2x table
10x table
5x table
Mixed 2x/5x/10x tables
Division facts of 2x table
Division facts of 10x table
Division facts of 5x table
3x table
Division facts of 3x table
4x table
Division facts of 4x table
6x table
Division facts of 6x table
8x table
Division facts of 8x table
Mixed 3x/6x tables
Mixed division facts of 3x/6x tables
Mixed 4x/8x tables
Mixed division facts of 4x/8x tables
9x table
Division facts of 9x table
7x table
Division facts of 7x table
Mixed 2x to 10x tables

Mixed division facts of 2x to 10x tables

11x table
Division facts of 11x table
12x table
Division facts of 12x table

Doubling of two-digit numbers
Doubling of three-digit numbers
Halving of two-digit and three-digit numbers
Multiplying with multiples of 10, e.g. 300 x 7, 50 x 80
Dividing multiples of 10, e.g. 270 ÷ 30, 3,600 ÷ 9
Unit fractions of amounts, e.g. 1/4 of 32, 1/6 of 54
Non-unit fractions of amounts, e.g. 2/3 of 24, 5/8 of 56
Unit fraction of amounts of multiples of 10, e.g. 1/5 of 350
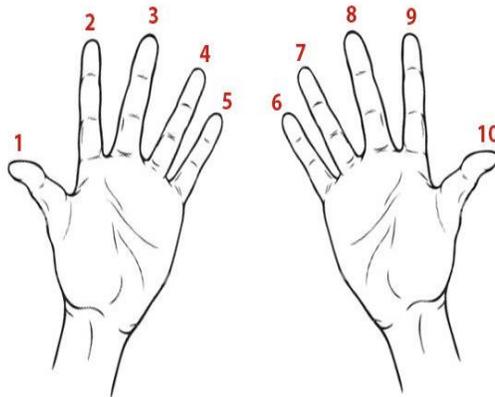Non-unit fractions of multiples of 10, e.g. 3/7 of 420
Multiplying by a decimal, e.g. 9 x 0.7, 0.3 x 0.8
Multiplying three single-digit numbers, e.g. 4 x 3 x 8, 7 x 6 x 5
Simple percentages of amounts, e.g. 50% of 42, 25% of 72
Percentages of amounts, e.g. 80% of 45, 60% of 200

Mixed questions of increased difficulty and challenge relating to tables facts

and finally...

The Nine Times Table Trick

1. Hold your hands in front of you with your fingers spread out.
2. For 3 X 9 bend your third finger down. (4 X 9 would be the fourth finger etc.)
3. You have 2 fingers in front of the bent finger and 7 after the bent finger.
4. Thus the answer must be 27.
5. This technique works for the 9 times tables up to 10.