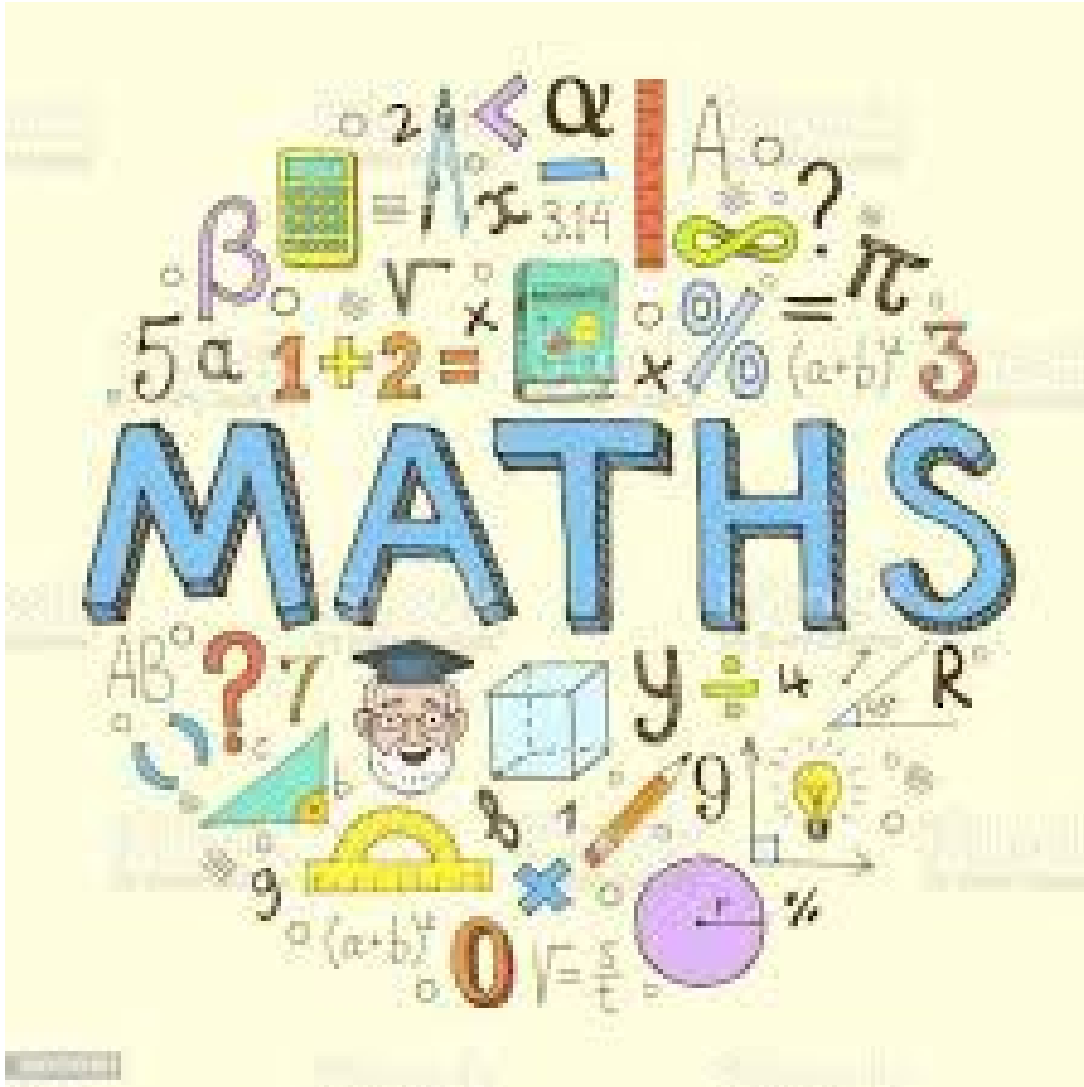




KIRFs at Leighterton

What are KIRFs (Key Instant Recall Facts)

- Key number facts such as number bonds ($3 + 2$, $5 + 5$, $6 - 2$)
- Counting skills – including counting in steps of different numbers
e.g. 2s, 5s, 10s
- Times tables (from Y3 onwards)
- Doubles and halves e.g. $4 + 4$, $40 + 40$, $400 + 400$

These facts are progressive and will be built on year after year.

Why are they important?

- KIRFs are used when calculating and instant recall allows children to free up their working memory, enabling them to focus on the harder tasks
- Slow recall of these facts mean that the children are unable to retain the key steps when calculating using different mental and written methods

What are the children expected to know and when?

By the end of Reception

Children must be able to recall addition and subtraction facts up to 5 and some number bonds to 10, including doubles

+	0	1	2	3	4	5	6	7	8	9	10
0	0+0	0+1	0+2	0+3	0+4	0+5	0+6	0+7	0+8	0+9	0+10
1	1+0	1+1	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+9	1+10
2	2+0	2+1	2+2	2+3	2+4	2+5	2+6	2+7	2+8	2+9	2+10
3	3+0	3+1	3+2	3+3	3+4	3+5	3+6	3+7	3+8	3+9	3+10
4	4+0	4+1	4+2	4+3	4+4	4+5	4+6	4+7	4+8	4+9	4+10
5	5+0	5+1	5+2	5+3	5+4	5+5	5+6	5+7	5+8	5+9	5+10
6	6+0	6+1	6+2	6+3	6+4	6+5	6+6	6+7	6+8	6+9	6+10
7	7+0	7+1	7+2	7+3	7+4	7+5	7+6	7+7	7+8	7+9	7+10
8	8+0	8+1	8+2	8+3	8+4	8+5	8+6	8+7	8+8	8+9	8+10
9	9+0	9+1	9+2	9+3	9+4	9+5	9+6	9+7	9+8	9+9	9+10
10	10+0	10+1	10+2	10+3	10+4	10+5	10+6	10+7	10+8	10+9	10+10

Adding 1 and 2 Bonds to 10 Adding 10 Doubles Adding 0 Near Double Compensating and Adjusting

What are the children expected to know and when?

By the end of KS1

Children must be able to **instantly recall** (not calculate) all addition and subtraction facts up to 20

+	0	1	2	3	4	5	6	7	8	9	10
0	0+0	0+1	0+2	0+3	0+4	0+5	0+6	0+7	0+8	0+9	0+10
1	1+0	1+1	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+9	1+10
2	2+0	2+1	2+2	2+3	2+4	2+5	2+6	2+7	2+8	2+9	2+10
3	3+0	3+1	3+2	3+3	3+4	3+5	3+6	3+7	3+8	3+9	3+10
4	4+0	4+1	4+2	4+3	4+4	4+5	4+6	4+7	4+8	4+9	4+10
5	5+0	5+1	5+2	5+3	5+4	5+5	5+6	5+7	5+8	5+9	5+10
6	6+0	6+1	6+2	6+3	6+4	6+5	6+6	6+7	6+8	6+9	6+10
7	7+0	7+1	7+2	7+3	7+4	7+5	7+6	7+7	7+8	7+9	7+10
8	8+0	8+1	8+2	8+3	8+4	8+5	8+6	8+7	8+8	8+9	8+10
9	9+0	9+1	9+2	9+3	9+4	9+5	9+6	9+7	9+8	9+9	9+10
10	10+0	10+1	10+2	10+3	10+4	10+5	10+6	10+7	10+8	10+9	10+10

Adding 1 and 2 Bonds to 10 Adding 10 Doubles Adding 0 Near Double Compensating and Adjusting

What are the children expected to know and when?

By the end of Y3

This table shows the times table facts that children should be able to rapidly recall by the end of Year 3. You will see that in Year 3 mental maths knowledge continues to play an important role.

It is also important to note that, as well as the multiplication facts, children should be able to rapidly recall the related division facts as well. For example, for $4 \times 6 = 24$, children should know $24 \div 6 = 4$ and $24 \div 4 = 6$.

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

1 x facts Doubles Squares New Facts Known Facts

What are the children expected to know and when?

By the end of Y3

Addition and subtraction of multiples of 10 where the answer is between 0 and 100 (e.g. $70 + 30 = 100$, $20 + 40 = 60$)

Double and halves of multiples of 10 to 100 using known doubles to 20 (e.g. double 6 = 12 so double 60 = 120, double 7 = 14 so double 70 = 140)

Multiplying two-digit number by 10 using their knowledge of place value (e.g. $24 \times 10 = 240$)

What are the children expected to know and when?

By the end of Y4

	1	2	3	4	5	6	7	8	9	10	11	12
1	1x1	2x1	3x1	4x1	5x1	6x1	7x1	8x1	9x1	10x1	11x1	12x1
2	1x2	2x2	3x2	4x2	5x2	6x2	7x2	8x2	9x2	10x2	11x2	12x2
3	1x3	2x3	3x3	4x3	5x3	6x3	7x3	8x3	9x3	10x3	11x3	12x3
4	1x4	2x4	3x4	4x4	5x4	6x4	7x4	8x4	9x4	10x4	11x4	12x4
5	1x5	2x5	3x5	4x5	5x5	6x5	7x5	8x5	9x5	10x5	11x5	12x5
6	1x6	2x6	3x6	4x6	5x6	6x6	7x6	8x6	9x6	10x6	11x6	12x6
7	1x7	2x7	3x7	4x7	5x7	6x7	7x7	8x7	9x7	10x7	11x7	12x7
8	1x8	2x8	3x8	4x8	5x8	6x8	7x8	8x8	9x8	10x8	11x8	12x8
9	1x9	2x9	3x9	4x9	5x9	6x9	7x9	8x9	9x9	10x9	11x9	12x9
10	1x10	2x10	3x10	4x10	5x10	6x10	7x10	8x10	9x10	10x10	11x10	12x10
11	1x11	2x11	3x11	4x11	5x11	6x11	7x11	8x11	9x11	10x11	11x11	12x11
12	1x12	2x12	3x12	4x12	5x12	6x12	7x12	8x12	9x12	10x12	11x12	12x12

1 x facts Doubles Squares New Facts Known Facts

The 38 new multiplication (and division) facts that children need to know by the end of Year 4.

By the end of Year 4, children need to be able to rapidly recall all multiplication and related division facts for all times tables up to 12 x 12 in order to prepare them for the Year 4 multiplication check.

However, as you can see, there are only 38 new facts for them to learn during Year 4.

What are the children expected to know and when?

By the end of Y4

In addition to the facts above, and their basic addition facts, Year 4 children should be able to recall these:

- Addition and subtraction of multiples of 10 using knowledge of number bonds to 10 and place value (e.g. $70 + 30 = 100$, $50 + 60 = 110$, $20 + 40 = 60$);
- Addition and subtraction of multiples of 100 where the answer is 1,000 or less (e.g. $300 + 400 = 700$, $400 + 600 = 1,000$);
- Double and halves of multiples of 10 to 100 (e.g. double $60 = 120$, half $50 = 25$);
- Halves of any even number to 100 (e.g. half of $22 = 11$);
- And multiplying any **two and three-digit number** by 10 and 100 using their knowledge of place value (e.g. $24 \times 100 = 2,400$)

What are the children expected to know and when?

By the end of Y5

Together with the 1-12 x multiplication and division facts, and their basic addition facts, children should be able to recall the following:

- Addition and subtraction of multiples of 10 (e.g. $70 + 30 = 100$, $50 + 60 = 110$, $20 + 40 = 60$);
- Addition and subtraction of multiples of 100 (e.g. $300 + 400 = 700$, $400 + 600 = 1,000$, $800 + 500 = 1,300$);
- Addition and subtraction of multiples of 1000 (e.g. $3000 + 4000 = 7000$);
- Double and halves of multiples of 10 to 100 (e.g. double $60 = 120$, half $50 = 25$);
- Halves of any number to 100 (e.g. half of $22 = 11$, half of $51 = 25.5$);
- Multiplying and **dividing** any number by 10 and 100 including decimals (e.g. $24 \times 100 = 2,400$, $45 \div 100 = 0.45$, $3.4 \times 10 = 34$);
- Squares of all numbers up to 12;
- And cubes of 2,3,4 and 5.

What are the children expected to know and when?

By the end of Y6

By Year 6, children should have a solid grasp of all the rapid recall facts from previous year groups and be able to apply them to a range of questions and problem-solving situations. The final step is to practise the skill below:

- Multiplication and division of multiples of 10 and 100 based on known facts and their knowledge of place value (e.g. $40 \times 40 = 1,600$, $1320 \div 11 = 120$)

What are the children expected to know and when?

Counting skills

Alongside these rapid recall facts, the children are also required to count in different ways by the end of each year group.

Reception	
• Count forwards from 0 to 5 • Count backwards from 5 to 0 • Count forwards from 0 to 10 • Count backwards from 10 to 0 • Count forwards from 0 to 20 • Count backwards from 20 to 0 • Count forwards from any given number within 0 -5 • Count backwards from any given number within 0-5 • Count forwards from any given number within 10 • Count backwards from any given number within 10	• Count forwards from any given number within 20 • Count forwards from any given number within 20 • Count forwards within 20 starting and stopping at different numbers • Count backwards within 20 starting and stopping at different numbers • Count forwards a given number of steps e.g. Start on 6 and count on 3 (within 10) • Count backwards a given number of steps (within 10)

What are the children expected to know and when?

Year 1

- Count to and across 100 from 0
- Count from 100 backwards to 0
- Count to and across 100 forwards from any number
- Count backwards from any given number crossing 100
- Count in multiples of two from 0 to 24
- Count in multiples of 5 from 0 to 60
- Count in multiples of 10 from 0 to 120

What are the children expected to know and when?

Year 2

- Count in multiples of 2 from 0 to 24
- Count in multiples of 5 from 0 to 60
- Count in multiples of 3 from 0 to 36
- Count in multiples of 10 from any number within 100
- Count backwards in multiples of 10 from any number within 100
- Count in odd numbers from 1 to 20
- Count forwards in halves up to 10
- Count forwards in quarters up to 10
- Count forwards in thirds up to 10

What are the children expected to know and when?

Year 3

- Count forwards in multiples of 4 from 0 up to 48
- Count forwards in multiples of 8 from 0 up to 96
- Count forwards in multiples of 50 from 0 to 1000
- Count backwards in multiples of 4 from 48 to 0
- Count backwards in multiples of 8 from 96 to 0
- Count backwards in multiples of 50 from 1000 to 0
- Count in multiples of 100 from 0 to 1000
- Count in multiples of 100 from any number up to 1000
- Count backwards in multiples of 100 from any number less than 1000
- Count forwards in tenths (as fraction and decimal) from any number within 50
- Count backwards in tenths (as fraction and decimal) from any number within 50
- Count backwards in halves from 10
- Count backwards in quarters from 10
- Count backwards in thirds from 10

What are the children expected to know and when?

Year 4

- Count forwards in multiples of 6 from 0 to 72
- Count forwards in multiples of 9 from 0 to 108
- Count forwards in multiples of 7 from 0 to 84
- Count backwards in multiples of 6 from 72 to 0
- Count backwards in multiples of 9 from 108 to 0
- Count backwards in multiples of 7 from 84 to 0
- Count forwards in multiples of 1000 from 0 to 10 000 from any number
- Count backwards in multiples of 1000 from any number within 10 000
- Count forwards in steps of 25 to 1000
- Count backwards in steps of 25 from 1000
- Count backwards through zero to include negative numbers
- Count forwards in hundredths
- Count backwards in hundredths
- Count forwards in steps of any fraction with the same denominator e.g. sixths
- Count backwards in steps of any fraction with the same denominator

What are the children expected to know and when?

Year 5

- Count forwards in powers of 10 from any given number up to one million (whole numbers)
- Count backwards in powers of 10 from any given number from one million (whole numbers)
- Count forwards through zero
- Count backwards through zero
- Count forwards in steps of known multiples as decimals e.g. 0.2, 0.9 1.1 , 2.5
- Count forwards in square numbers from 0 to 100
- Count backwards in square numbers from 100 to 0
- Count forwards in prime numbers to 20
- Count backwards in prime numbers from 19
- Count forwards and backwards in steps of simple fractions including bridging 0

What are the children expected to know and when?

Year 6

- Consolidate all counting from previous year groups including bridging 0 e.g. -25s forwards and backwards

How can you help?

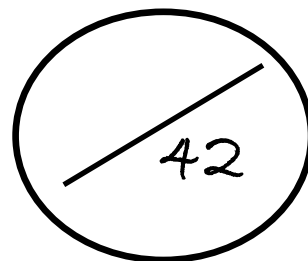
Name:



Quickfire facts
challenge



Year 4 - 60 seconds



8+3=	7×8=	6×8=	6+2=	5+5=	7+3=
5+2=	9+5=	9+4=	8×8=	4+4=	6+4=
9+7=	6×7=	6+5=	7+7=	7+6=	8+6=
9+9=	3+2=	7+4=	8+4=	3+3=	9+2=
2+2=	6+6=	7×7=	6×6=	9+8=	5+4=
8+5=	5+3=	7+5=	4+3=	6+3=	8+2=
9+6=	8+7=	4+2=	7+2=	9+3=	8+8=

Homework that will be sent every week. The idea is that the children complete as many of the facts as they can in the time given. It is not meant to be a pressured test, just an opportunity to practice and improve each time.

How can you help?

- Playing board games
- Counting in the car, around the dinner table etc..
- Playing games with dice or playing cards
- Watch Numberblocks!
- Make a number flip game <https://thirdspacelearning.com/blog/10-minute-maths-number-facts/>
- Playing games online or on a tablet:
 - <https://www.topmarks.co.uk/maths-games/7-11-years/addition-and-subtraction>
 - <https://ictgames.com/mobilePage/numberFacts.html>
 - <https://mathszone.co.uk/category/calculating/number-facts/>
 - <https://www.mathschase.com/>
 - <https://www.timestables.co.uk/>

Let's play!