



Key Instant Recall Facts (KIRFs)

Highfield Primary School

To develop your child's fluency and mental maths skills, we are introducing KIRFs throughout school. KIRFs are a way of helping your child to learn by heart, key facts and information which they need to have instant recall of.

KIRFs are designed to support the development of mental maths skills that underpin much of the maths work in our school. They are particularly useful when calculating, adding, subtracting, multiplying or dividing. They contain number facts such as number bonds and times tables that need constant practise and rehearsal, so children can recall them quickly and accurately.

Instant recall of facts helps enormously with mental agility in maths lessons. When children move onto written calculations, knowing these key facts is very beneficial. For your child to become more efficient in recalling them easily, they need to be practised frequently and for short periods of time.

Each half term, children will focus on a Key Instant Recall Fact (KIRF) to practise and learn at home for the half term. They will also be available on our school website under the maths section and each child will receive a copy to keep at home. The KIRFs include practical ideas to assist your child in grasping the key facts and contain helpful suggestions of ways in which you could make this learning interesting and relevant. They are not designed to be a time-consuming task and can be practised anywhere - in the car, walking to school, etc. Regular practice - little and often - helps children to retain these facts and keep their skills sharp. Throughout the half term, the KIRFs will also be practised in school and your child's teacher will assess whether they have been retained.

Over their time at primary school, we believe that - if the KIRFs are developed fully - children will be more confident with number work, understand its relevance, and be able to access the curriculum much more easily. They will be able to apply what they have learnt to a wide range of problems that confront us regularly.



Highfield Primary School

Key Instant Recall Facts

Year 5 - Autumn 1

I know the multiplication and division facts for all times tables up to 12×12 .

The Year 5 children should already know ALL the times tables up to 12×12 . The aim is for them to recall these facts instantly. This half term is a chance for Year 5 children to consolidate their knowledge of multiplication and division facts and to increase their speed of recall.

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

Key Vocabulary

Times
Multiplied by
Lots of
Groups of
Divided by
Shared
Shared
Product

They should be able to answer these questions in any order, including missing number questions e.g. $7 \times \bigcirc = 28$ or $\bigcirc \div 6 = 7$. Children who have already mastered their times tables should apply this knowledge to answer questions including decimals e.g. $0.7 \times \bigcirc = 4.2$ or $\bigcirc \div 60 = 0.7$

Top Tips...

The secret to success is practising little and often. Use time wisely. Can you practise these KIRFs while walking to school or during a car journey? You don't need to practise them all at once: perhaps you could start with one particular times tables and ensure they know all of them before moving onto another times table.

Speed Challenge - Take two packs of playing cards and remove the kings. Turn over two cards and ask your child to multiply the numbers together (Ace = 1, Jack = 11, Queen = 12). How many questions can they answer correctly in 2 minutes? Practise regularly and see if they can beat their high score.



Highfield Primary School

Key Instant Recall Facts

Year 5 - Autumn 2

I can find factor pairs of a number.

Children should now know all multiplication and division facts up to 12×12 . When given a number in one of these times tables, they should be able to state a factor pair which multiply to make this number.

Below are some examples:

$$24 = 4 \times 6$$

$$24 = 8 \times 3$$

$$56 = 7 \times 8$$

$$54 = 9 \times 6$$

$$42 = 6 \times 7$$

$$25 = 5 \times 5$$

$$84 = 7 \times 12$$

$$15 = 5 \times 3$$

Key Vocabulary

- factor
- product
- divide
- multiplied
- equals

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

Top Tips...

- Play games - There is an activity at www.conkermaths.org to practice finding factor pairs.
- Think of the question - One player thinks of a times table question (e.g. 4×12) and states the answer. The other player has to guess the original question.
- Use memory tricks - For those hard to remember facts, www.multiplication.com has some strange picture stories to help children remember.



Highfield Primary School

Key Instant Recall Facts

Year 5 - Spring 1

I can identify prime numbers up to 20.

I can recall square numbers up to 12^2 and their square roots.

A prime number is a number with no factors other than itself and one.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

A composite number is divisible by a number other than 1 or itself. The following numbers are composite numbers: 4, 6, 8, 9, 10, 12, 14, 15, 16, 18, 20. Children should be able to explain how they know that a number is composite. *E.g. 15 is composite because it is a multiple of 3 and 5.*

$$1^2 = 1 \times 1 = 1$$

$$2^2 = 2 \times 2 = 4$$

$$3^2 = 3 \times 3 = 9$$

$$4^2 = 4 \times 4 = 16$$

$$5^2 = 5 \times 5 = 25$$

$$6^2 = 6 \times 6 = 36$$

$$7^2 = 7 \times 7 = 49$$

$$8^2 = 8 \times 8 = 64$$

$$9^2 = 9 \times 9 = 81$$

$$10^2 = 10 \times 10 = 100$$

$$11^2 = 11 \times 11 = 121$$

$$12^2 = 12 \times 12 = 144$$

Children should also be able to recognise whether a number below 150 is a square number or not.

Square numbers are the product of a number multiplied by itself.

Key Vocabulary

- Prime number
- Composite number
- Factor
- Multiple
- What is 8 squared?
- What is 7 multiplied by itself?
- What is the square root of 144?
- Is 81 a square number?

Top Tips...

- It's really important that your child uses mathematical vocabulary accurately. Choose a number between 2 and 20. How many correct statements can they make about this number using the vocabulary above?
- Make a set of cards for the numbers from 2 to 20. How quickly can they sort these into prime and composite numbers? How many even prime numbers can they find? How many odd composite numbers?
- Cycling Squares - At <https://nrich.maths.org/1151> there is a challenge involving square numbers. Can you complete the challenge and then create your own examples?



Highfield Primary School

Key Instant Recall Facts

Year 5 - Spring 2

I know the decimal and percentage equivalents of the fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, tenths and fifths.

Children should know the following facts. The aim is for them to recall these facts instantly. Children should be able to convert between fractions, decimals, and percentages for $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, and any number of fifths, tenths or hundredths.

$\frac{1}{2}$ 0.5 = 50%	$\frac{5}{5} = 1 = 100\%$	$\frac{7}{10} = 0.7 = 70\%$	$\frac{10}{100} = 0.1 = 10\%$
$\frac{1}{4} = 0.25 = 25\%$	$\frac{1}{10} = 0.1 = 10\%$	$\frac{8}{10} = 0.8 = 80\%$	$\frac{50}{100} = 0.5 = 50\%$
$\frac{3}{4} = 0.75 = 75\%$	$\frac{2}{10} = 0.2 = 20\%$	$\frac{9}{10} = 0.9 = 90\%$	$\frac{99}{100} = 0.99 = 99\%$
$\frac{1}{5}$ 0.2 = 20%	$\frac{3}{10} = 0.3 = 30\%$	$\frac{10}{10} = 1 = 100\%$	$\frac{100}{100} = 1 = 100\%$
$\frac{2}{5}$ 0.4 = 40%	$\frac{4}{10} = 0.4 = 40\%$	$\frac{1}{100} = 0.01 = 1\%$	
$\frac{3}{5}$ 0.6 = 60%	$\frac{5}{10} = 0.5 = 50\%$	$\frac{5}{100} = 0.05 = 5\%$	
$\frac{4}{5}$ 0.8 = 80%	$\frac{6}{10} = 0.6 = 60\%$	$\frac{45}{100} = 0.45 = 45\%$	

Key Vocabulary

- tenths
- fifths
- hundredths
- percentage
- decimal
- fraction

Percentages are just another way of expressing hundredths, so 15 hundredths is the same as 15%. A common mistake is to confuse 0.1 as 1% (or 0.2 as 2% etc.). This is incorrect: 0.1 is 1 tenth, or 10 hundredths so it is equivalent to 10%. The correct decimal for 1% is 0.01.

Top Tips...

- Count up and down in tenths and hundredths, counting out loud, then change between fractions and percentages as well.
- Make some cards with pairs of equivalent fractions, decimals and percentages. Use these to play the memory game or snap. Or make your own dominoes with fractions or decimals one side and percentages on the other.



Highfield Primary School

Key Instant Recall Facts

Year 5 - Summer 1

I know decimal number bonds to 1 and 10.

Children should know the following facts. The aim is for them to recall these facts instantly.

Some examples:

$$0.6 + 0.4 = 1$$

$$3.7 + 6.3 = 10$$

$$0.4 + 0.6 = 1$$

$$6.3 + 3.7 = 10$$

$$1 - 0.4 = 0.6$$

$$10 - 3.7 = 6.3$$

$$1 - 0.6 = 0.4$$

$$10 - 6.3 = 3.7$$

$$0.75 + 0.25 = 1$$

$$4.8 + 5.2 = 10$$

$$0.25 + 0.75 = 1$$

$$5.2 + 4.8 = 10$$

$$1 - 0.25 = 0.75$$

$$10 - 5.2 = 4.8$$

$$1 - 0.75 = 0.25$$

$$10 - 4.8 = 5.2$$

Key Vocabulary

- What do I **add** to 0.8 to make 1?
- What is 1 **take away** 0.06?
- What is 1.3 **less than** 10?
- **How many more than** 9.8 is 10?
- What is the **difference** between 0.92 and 10?

This list includes some examples of facts that children should know. They should be able to answer questions including missing number questions.

e.g. $0.49 + \square = 10$ or $7.2 + \square = 10$.

Top Tips...

- **Buy one get three free** - If your child knows one fact (e.g. $0.7 + 0.3 = 1$), can they tell you the other three facts in the same fact family?
- **Use number bonds to 10** - How can your number bonds to 10 help you work out decimal number bonds?
- **Play Games** - There are missing number questions at www.conkermaths.org
See how many questions you can answer in 90 seconds.