Key Instant Recall Facts

Parents' Information

KIRF's (Key Instant Recall Facts) are pieces of mathematical knowledge that we want the children to learn off-by-heart or be able to work out very quickly (within 3 seconds).

They are designed to support the development of the mental skills that underpin mathematics. They are particularly useful when calculating, be it adding, subtracting, multiplying or dividing. They will include facts such as number bonds, counting on, back, times tables, equivalence of units of measure, and square numbers.

Each year group is allocated key facts to focus on throughout the year, in line with age related expectations. These should be practised for rapid recall.

Why are they important?

Research shows that:

- Learning key facts 'by heart' enables children to concentrate on the calculation, which helps them to develop calculation strategies.
- Using and applying strategies to work out answers helps children to acquire and so remember more facts.
- Many children who are not able to recall key facts often treat each calculation as a new one and have to return to first principles to work out the answer again.
- Once they have a secure knowledge of some key facts, and by selecting problems carefully, you can help children to appreciate that from the answer to one problem, other answers can be generated.

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 have a fact of the day.

If you would like more ideas, please speak to your child's class teacher.

Key Instant Recall Facts

Nursery – Autumn 1

I can find numbers in everyday life.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

Key Vocabulary

What **numbers** can you see?

Are there any **numbers** on…?

I've got 3 toys, you have 2.

Top Tips

Children see numbers everyday on doors, in shops, on buses, on telephones, on car registrations, in the Nursery, on TV, on the TV remote control, etc. Use these opportunities to talk about the numbers and what they mean.

Watch songs or TV programmes about numbers e.g. Numberblocks

Numberblocks - CBeebies - BBC

Use pretend play and role play situations to develop awareness of number, e.g. when playing shops, post offices, hospital play etc.

Count wherever and whenever you can.

Encourage your child to observe when you are counting and writing numbers.

Use everyday object in your home to reinforce their number awareness, e.g. by using phones, changing channels on the TV, etc.

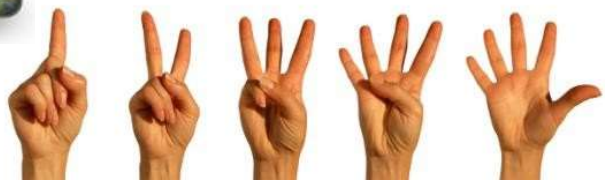
Use moveable numbers, e.g. magnetic numbers, bath toy number.

Key Instant Recall Facts

Reception – Autumn 1

I can name and order the numbers to 5.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.



Key Vocabulary

One, two, three, four, five

What comes **next**?

What is **before** 4?

What comes **after** 2?

Scan these QR codes to take you to some online games...

Top Tips

Songs and rhymes – 'One, two, three, four, five, once I caught a fish alive' and 'One man went to mow'. Five Little Ducks | Kids Songs | Super Simple Songs - YouTube

Matching and ordering – Use number cards 1-5 to order and say the numbers in order.

Play games together –
Use numbered finger puppets. Which number comes next?
Blow out five candles in a row, counting as you go.
Count up or down the stairs.
Do alternate counting with your child.
Miss out a number when counting to see if your child can spot your 'mistake'.

Online activities – Go online to find plenty of counting games. Here are just a few in which you can choose the number 5 as an option:
Learning to Count up to 15 with Teddy Numbers Interactive Maths Game (topmarks.co.uk)
The Gingerbread Man Game - Counting, Matching and Ordering game (topmarks.co.uk)

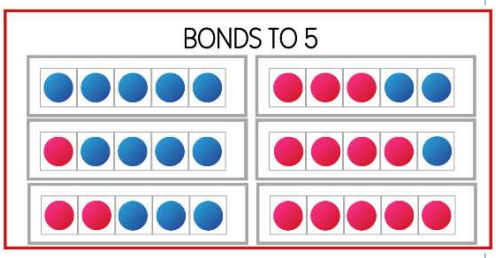
Key Instant Recall Facts

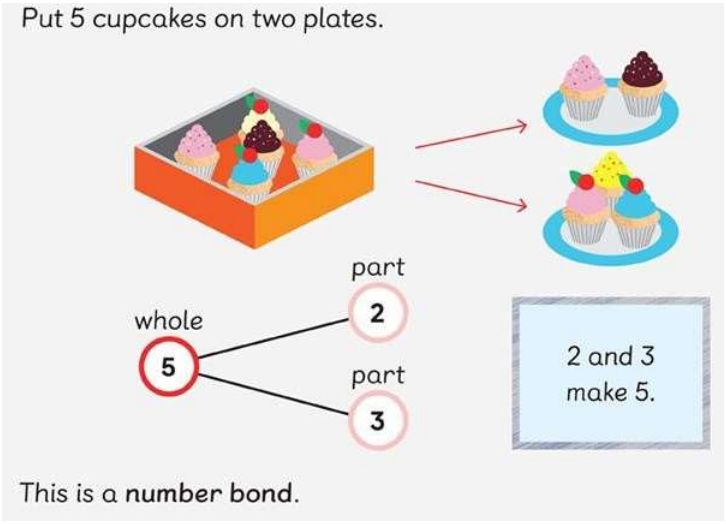
Year 1 – Autumn 1

I know all number bonds to 5.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

0 + 5 = 5	1 + 4 = 5	2 + 3 = 5
5 + 0 = 5	4 + 1 = 5	3 + 2 = 5
5 – 5 = 0	5 – 4 = 1	5 – 3 = 2
5 – 0 = 5	5 – 1 = 4	5 – 2 = 3





Key Vocabulary

What is 3 **add** 2?

What is 1 **plus** 4?

What is 5 **take away** 2?

What is 1 **less than** 5?

Part

Whole

They should be able to answer these questions in any order, including missing number questions e.g. 3 + ◯ = 5 or 5 – ◯ = 1.

Top Tips

Play games – You can play number bond pairs online at number bonds to 5 - Topmarks Search and then see how many questions you can answer in just one minute.
Number Bonds Games for Kids Online – SplashLearn

Listen to songs – In the car, at home, whilst waiting for a bus etc.!
I Know My Number Bonds 5 | Number Bonds to 5 | Addition Song for Kids | Jack Hartmann – YouTube
BBC Two - The Maths Channel, Year 1 - Addition, Number bonds to 5 song

Get practical – Have children put 5 of their toys into 2 bowls/boxes – how many ways can they do this?

Key Instant Recall Facts

Year 2 – Autumn 1

I know addition and subtraction facts to 20.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

0 + 20 = 20	20 + 0 = 20	20 – 0 = 20	20 – 20 = 0
1 + 19 = 20	19 + 1 = 20	20 – 1 = 19	20 – 19 = 1
2 + 18 = 20	18 + 2 = 20	20 – 2 = 18	20 – 18 = 2
3 + 17 = 20	17 + 3 = 20	20 – 3 = 17	20 – 17 = 3
4 + 16 = 20	16 + 4 = 20	20 – 4 = 16	20 – 16 = 4
5 + 15 = 20	15 + 5 = 20	20 – 5 = 15	20 – 15 = 5
6 + 14 = 20	14 + 6 = 20	20 – 6 = 14	20 – 14 = 6
7 + 13 = 20	13 + 7 = 20	20 – 7 = 13	20 – 13 = 7
8 + 12 = 20	12 + 8 = 20	20 – 8 = 12	20 – 12 = 8
9 + 11 = 20	11 + 9 = 20	20 – 9 = 11	20 – 11 = 9
10 + 10 = 20		20 – 10 = 10	

Key Vocabulary

What do I **add** to 5 to make 20?

What is 20 **take away** 6?

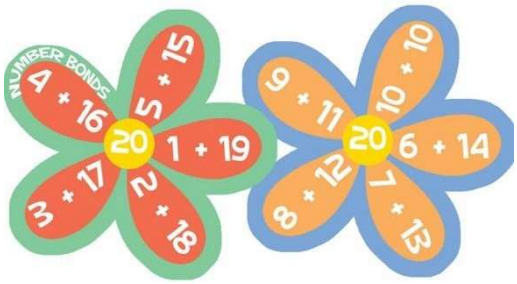
What is 3 **less than** 20?

How many more than 16 is 20?

Scan the QR code to take you directly to 'Hit the Button' online game.

They should be able to answer these questions in any order, including missing number questions

e.g. 19 + ◯ = 20 or 20 – ◯ = 8.



Top Tips

Use what you already know – Use number bonds to 10 (e.g. 7 + 3 = 10) to work out related number bonds to 20 (e.g. 17 + 3 = 20).

Use practical resources – Make collections of 20 objects. Ask questions such as, "How many more conkers would I need to make 20?"

Make a poster – We use Numicon at school. You can find pictures of the Numicon shapes here: Numicon pcms Shapes, Numerals and Number Words 1-10 (Actual Size).pdf (oup.com) – your child could make a poster showing the different ways of making 20.

Play games – You can play number bond pairs online at Number Bonds 20 | Math Playground

Hit the Button - Quick fire maths practise for 6-11 year olds (topmarks.co.uk)

Key Instant Recall Facts

Year 3 – Autumn 1

I can count forwards and backwards in multiples of 10, 25, 50 and 100 to 1000.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

0, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120…
1000, 990, 980, 970, 960, 950, 940, 930, 920….

0, 25, 50, 75, 100, 125, 150, 175, 200…
1000, 975, 950, 925, 900, 875, 850, 825…

0, 50, 100, 150, 200, 250, 300, 350, 400…
1000, 950, 900, 850, 800, 750, 700, 650…

0, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000
1000, 900, 800, 700, 600, 500, 400, 300, 200, 100, 0

Key Vocabulary

Counting in 25s, what number **follows** 75?
Counting in 10s, what number comes **before** 90.
Count **forwards** in 50s.
Count **backwards** in 100s.

Top Tips

Check out online tutorials - Count in 25s - Maths Collection - Learning with BBC Bitesize - BBC Bitesize
Counting in 50s - Maths - Learning with BBC Bitesize - BBC Bitesize

Spot Patterns - Identify repeating patterns in the sequences.

Sing songs - How to Count By 25 | Tiny Tunes - YouTube

Literally counting in steps! – Write out the sequences on post it notes and stick them up the stairs. Say each number as you go up or down the stairs.

Online games –

Counting in 25s Interactive (snappymaths.com)

Counting in 50s Interactive (snappymaths.com)

Count by 100s - Math Games - SplashLearn

Key Instant Recall Facts

Year 4 – Autumn 1

I know all number bonds to 100.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

Some examples of fact families:

60 + 40 = 100	37 + 63 = 100
40 + 60 = 100	63 + 37 = 100
100 – 40 = 60	100 – 63 = 37
100 – 60 = 40	100 – 37 = 63
75 + 25 = 100	48 + 52 = 100
25 + 75 = 100	52 + 48 = 100
100 – 25 = 75	100 – 52 = 48
100 – 75 = 25	100 – 48 = 52

(Scan the QR code above to take you straight to the 'Hit the Button' game.)

Key Vocabulary

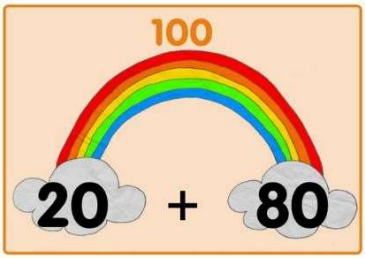
What do I **add** to 65 to make 100?

What is 100 **take away** 6?

What is 13 **less than** 100?

How many more than 98 is 100?

What is the **difference** between 89 and 100?



This list includes some examples of facts that children should know. They should be able to answer questions including missing number questions e.g. 49 + ◯ = 100 or 100 – ◯ = 72.

Top Tips

Check out an online tutorial - Number bonds to 100 - Maths - Learning with BBC Bitesize - BBC Bitesize

Buy one get three free - If your child knows one fact (e.g. 8 + 5 = 13), can they tell you the other three facts in the same fact family?

Use number bonds to 10 - How can number bonds to 10 help you work out number bonds to 100?

Make a poster – We use lots of concrete, pictorial and abstract methods in school. Your child could make a poster showing different methods to make the number bonds to 100.

Play games – Number bonds to 100 - Teaching resources (wordwall.net)
Hit the Button - Quick fire maths practise for 6-11 year olds (topmarks.co.uk)

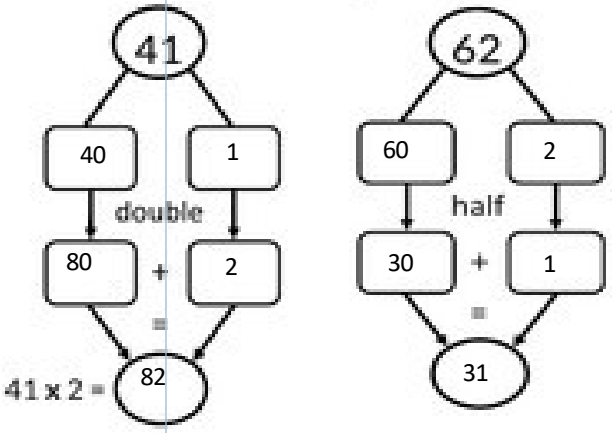
Key Instant Recall Facts

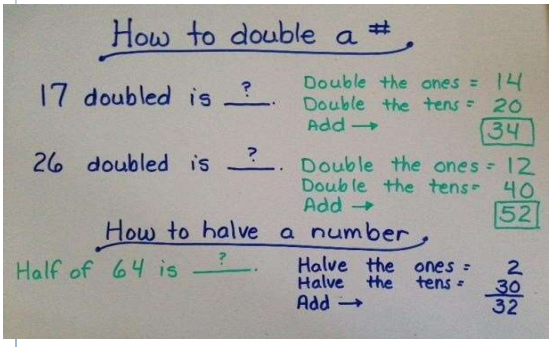
Year 5 – Autumn 1

I know doubles and halves of all two digit numbers.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

21 x 2 = 42	99 ÷ 2 = 49 ½
22 x 2 = 44	98 ÷ 2 = 49
23 x 2 = 46	97 ÷ 2 = 48 ½
24 x 2 = 48	96 ÷ 2 = 48
25 x 2 = 50	95 ÷ 2 = 47 ½
26 x 2 = 52	94 ÷ 2 = 47
27 x 2 = 54	93 ÷ 2 = 46 ½
28 x 2 =56	92 ÷ 2 = 46
29 x 2 = 58	91 ÷ 2 = 45 ½
30 x 2 = 60	90 ÷ 2 = 45
etc.	etc.
up to 99 x 2	Down to 20 ÷ 2





Key Vocabulary

Double means multiplied by 2 (x2).

Half means divided by 2 (÷2)

What is **double** 3?

What is **half** of 19?

Partition the tens and the ones to help.

Top Tips

Use mental strategies

Partitioning the number into tens and ones can help to break down the calculation into manageable chunks (see diagrams above).

Practise, practise, practise! – Use online worksheets to provide quickfire questions. Microsoft Word - MS8 Halving a two digit number.docx (numeracyninjas.org)

Online games –

Dartboard Double and Half - 6-11 year olds – Topmarks

Dartboard Calculator - 5-11 year olds – Topmarks

Archery Arithmetic - Multiplication – Mathsframe

Loop Cards - 5-11 year olds - Topmarks

I Can Halve Two Digit Numbers. | Interactive Game | Lesson ID 042 | Studyzone.tv

Key Instant Recall Facts

Year 6 – Autumn 1

I know square numbers up to 12 x 12 and their square roots.

By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

$1^2 = 1 \times 1 = 1$
$2^2 = 2 \times 2 = 4$
$3^2 = 3 \times 3 = 9$
$4^2 = 4 \times 4 = 16$
$5^2 = 5 \times 5 = 25$
$6^2 = 6 \times 6 = 36$
$7^2 = 7 \times 7 = 49$
$8^2 = 8 \times 8 = 64$
$9^2 = 9 \times 9 = 81$
$10^2 = 10 \times 10 = 100$
$11^2 = 11 \times 11 = 121$
$12^2 = 12 \times 12 = 144$

$\sqrt{1} = 1$
$\sqrt{4} = 2$
$\sqrt{9} = 3$
$\sqrt{16} = 4$
$\sqrt{25} = 5$
$\sqrt{36} = 6$
$\sqrt{49} = 7$
$\sqrt{64} = 8$
$\sqrt{81} = 9$
$\sqrt{100} = 10$
$\sqrt{121} = 11$

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

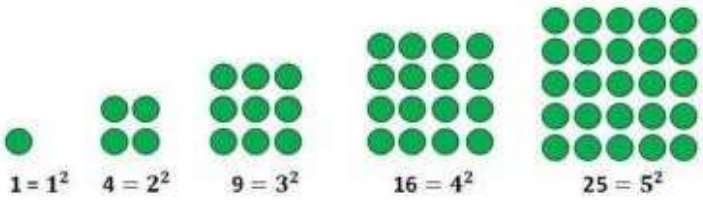
Key Vocabulary

What is 8 **squared**?

What is 7 **multiplied by itself**?

What is the **square root** of 144?

Is 81 a **square number**?



Key Knowledge

Notation- A symbol. The notation ^{2} means squared e.g. 52 is 5 squared, $5 \times 5 = 25$
Square number- The result when a number has been multiplied by itself.
Square root- A square root of a number is a value that, when multiplied by itself, gives the number. e.g. the square root of 9 is 3

Top Tips

Cycling Squares – At http://nrich.maths.org/1151 there is a challenge involving square numbers. Can you complete the challenge and then create your own examples?

Around the clock- think of a clock face. What are each of the numbers a square root of? E.g. 12: 12 is the square root of 144. What are each of the numbers squared?

Dice roll- whatever the number lands on, square it

Cards- turn a card over, square it and call out the answer. Can you say the answer quicker than your partner?

Online Games –
https://www.topmarks.co.uk/maths-games/hit-the-button7
https://wordwall.net/resource/9919606/maths/whack-square