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.

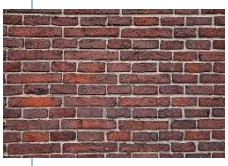
If you would like more ideas, please speak to your child's teacher.

Key Instant Recall Facts

Nursery – Spring 1

I can spot patterns.

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



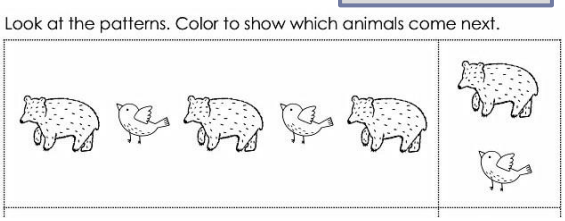
Key Vocabulary

Pattern

Repeating

What comes **next?**

sequence



Scan the QR code to be taken to a 'Finish the pattern game'…

Top Tips

The best, and easiest, way to learn this skill is to make it part of your everyday life and activities. It includes talking about days of the week, months of the year, seasons etc.

Play games
– make repeating patterns of toys e.g. red car, yellow car, red car, yellow car…
Online - Shape Patterns (topmarks.co.uk)

Get outside – look at leaves and make repeating patterns of different shape/colour ones, look at patterns on animals, take note of the seasons as they change from one to another.

Listen to songs – In the car, at home, whilst waiting for a bus etc.! Patterns and shapes - Math Song | Nursery Rhymes & Kids Songs - YouTube

Read (or watch) stories and nursery rhymes – Stories that revolve around the sequences of number include Goldilocks and the Three Bears, Three Blind Mice, the Three Little Pigs, Three Billy Goats Gruff etc. They often include repeated patterns of lyrics.

Key Instant Recall Facts

Reception – Spring 1

I can name and order the numbers to 10.

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

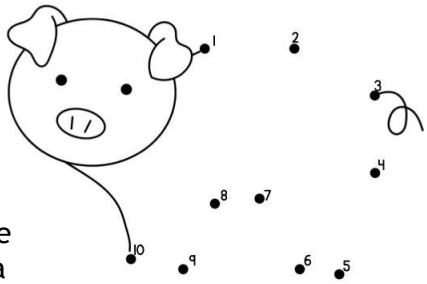
one	1	○
two	2	○○
three	3	○○○
four	4	○○○○
five	5	○○○○○
six	6	○○○○○○
seven	7	○○○○○○○
eight	8	○○○○○○○○
nine	9	○○○○○○○○○
ten	10	○○○○○○○○○○

Key Vocabulary

zero, one, two, three, four, five, six, seven, eight, nine, ten

What comes **next**?

After, before



Scan the QR code to take you to a teddy counting game.

Top Tips

Number hunt – Put a poster of the numbers around the house. When your child finds it, ask them the number name.

Dot to Dot – Print some out or have a go at drawing your own simple one. https://www.cool2bkids.com/dot-to-dot-1-10/

Use practical resources

- Your child has one potato on their plate and you give them three more. Can they predict how many they will have now?
- Write the digits 0—10 in bun cases or on paper plates and then order them. You could then use some kitchen tongs to place the correct number of items in each case/on the plates.

Sort the numbers – Write the numbers on cards. Ask your child to order the numbers.

Singing counting songs and nursery rhymes – Find a variety of them here: https://www.bbc.co.uk/teach/school-radio/nursery-rhymes-counting-songs/zn67kmn

Play online games - https://www.topmarks.co.uk/maths-games/3-5-years/counting

Key Instant Recall Facts

Year 1 – Spring 1

I know number bonds for each number up to 10.

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

Making 1

0 + 1 = 1 1 – 0 = 1
1 + 0 = 1

Making 2

0 + 2 = 2 2 – 0 = 2
1 + 1 = 2 2 – 1 = 1
2 + 0 = 2 2 – 2 = 0

Making 3

0 + 3 = 3 3 – 0 = 3
1 + 2 = 3 3 – 1 = 2
2 + 1 = 3 3 – 2 = 1
3 + 0 = 3 3 – 3 = 0

Making 4

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

Making 5

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

Making 6

0 + 6 = 6 6 – 0 = 6
1 + 5 = 6 6 – 1 = 5
2 + 4 = 6 6 – 2 = 4
3 + 3 = 6 6 – 3 = 3
4 + 2 = 6 6 – 4 = 2
5 + 1 = 6 6 – 5 = 1
6 + 0 = 6 6 – 6 = 0

Making 7

0 + 7 = 7 7 – 0 = 7
1 + 6 = 7 7 – 1 = 6
2 + 5 = 7 7 – 2 = 5
3 + 4 = 7 7 – 3 = 4
4 + 3 = 7 7 – 4 = 3
5 + 2 = 7 7 – 5 = 2
6 + 1 = 7 7 – 6 = 1
7 + 0 = 7 7 – 7 = 0

Making 8

0 + 8 = 8 8 – 0 = 8
1 + 7 = 8 8 – 1 = 7
2 + 6 = 8 8 – 2 = 6
3 + 5 = 8 8 – 3 = 5
4 + 4 = 8 8 – 4 = 4
5 + 3 = 8 8 – 5 = 3
6 + 2 = 8 8 – 6 = 2
7 + 1 = 8 8 – 7 = 1
0 + 8 = 8 8 – 8 = 0

Making 9

0 + 9 = 9 9 – 0 = 9
1 + 8 = 9 9 – 1 = 8
2 + 7 = 9 9 – 2 = 7
3 + 6 = 9 9 – 3 = 6
4 + 5 = 9 9 – 4 = 5
5 + 4 = 9 9 – 5 = 4
6 + 3 = 9 9 – 6 = 3
7 + 2 = 9 9 – 7 = 2
8 + 1 = 9 9 – 8 = 1
9 + 0 = 9 9 – 9 = 0

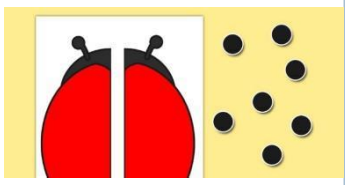
Key Vocabulary

What do I **add** to 5 to make 10?

What is 10 **take away** 6?

What is 3 **less than** 10?

How many more than 2 is 10?



Once you know the black facts, you can work out the green facts!

They should be able to answer these questions in any order, including missing number questions e.g. 1 + ◯ = 10 or 9 – ◯ = 8.

Top Tips

Use practical resources – Your child has 6, 7, 8, 9 or 10 peas on their plate; how many different ways can they split them into two groups?

Play games - Number Bonds Games for Kids Online – SplashLearn
Save The Whale: Learn bonds of 10, 9, 8, 7, 6 or 5 (ictgames.com)

Get arty – Draw a ladybird and get your child to add a given number of spots (use anything to hand e.g. bits of paper, coins, sweets…) in different ways.
- Create colourful paper chains to represent the different number bonds.

Key Instant Recall Facts

Year 2 – Spring 1

I know addition and subtraction facts for multiples of 10 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**.

0 + 100 = 100	100 + 0 = 100	100 – 100 = 0	100 – 0 = 100
10 +90 = 100	90 + 10 = 100	100 – 90 = 10	100 – 10 = 90
20 + 80 = 100	80 + 20 = 100	100 – 80 = 20	100 – 20 = 80
30 + 70 = 100	70 + 30 = 100	100 – 70 = 30	100 – 30 = 70
40 + 60 = 100	60 + 40 = 100	100 – 60 = 40	100 – 40 = 60
50 +50 = 100		100 – 50 = 50	

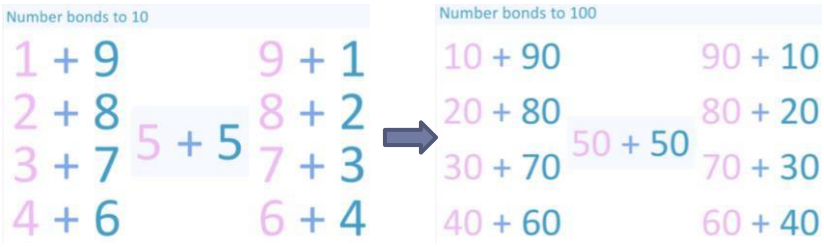
Key Vocabulary

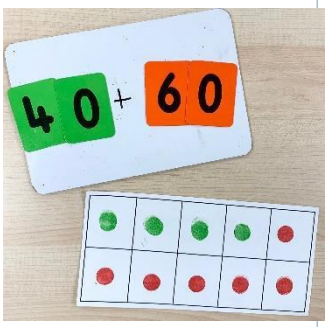
What is 50 **add** 50?

Subtract 20 from 100.

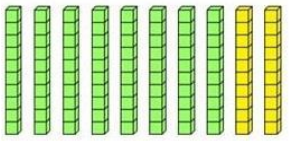
What is 100 **less** 60?

What is 70 **fewer** than 100?





Scan the QR code to take you to 'Hit the Button' - choose 'bonds' then 'making 100 (tens)'.



Top Tips

Use Known Facts - Use your number bonds to 10 and place value. (100 is ten times bigger than 10, so your bonds should be ten times bigger. i.e. 3 + 7 = 10 becomes 30 + 70 = 100

Online tutorials – This video relates number bonds to 10 to number bonds to 100. https://www.youtube.com/watch?v=SOtkHvRQ7CU

Listen to songs - https://www.youtube.com/watch?v=JquQktpc0SI

Play games online - https://wordwall.net/resource/11936859/maths/number-bonds-to-100
https://www.topmarks.co.uk/maths-games/hit-the-button

Flashcards – Create quick and easy double-sided flashcards to practise independently, or get a family member/friend to test them. Write half of the bond on each side e.g. 10 on the front, 90 on the back.

Key Instant Recall Facts

Year 3 – Spring 1

I know multiplication and division facts for x4 and x8 tables.

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

1 × 4 = 4	4 ÷ 4 = 1	1 × 8 = 8	8 ÷ 8 = 1
2 × 4 = 8	8 ÷ 4 = 2	2 × 8 = 16	16 ÷ 8 = 2
3 × 4 = 12	12 ÷ 4 = 3	3 × 8 = 24	24 ÷ 8 = 3
4 × 4 = 16	16 ÷ 4 = 4	4 × 8 = 32	32 ÷ 8 = 4
5 × 4 = 20	20 ÷ 4 = 5	5 × 8 = 40	40 ÷ 8 = 5
6 × 4 = 24	24 ÷ 4 = 6	6 × 8 = 48	48 ÷ 8 = 6
7 × 4 = 28	28 ÷ 4 = 7	7 × 8 = 56	56 ÷ 8 = 7
8 × 4 = 32	32 ÷ 4 = 8	8 × 8 = 64	64 ÷ 8 = 8
9 × 4 = 36	36 ÷ 4 = 9	9 × 8 = 72	72 ÷ 8 = 9
10 × 4 = 40	40 ÷ 4 = 10	10 × 8 = 80	80 ÷ 8 = 10
11 × 4 = 44	44 ÷ 4 = 11	11 × 8 = 88	88 ÷ 8 = 11
12 × 4 = 48	48 ÷ 4 = 12	12 × 8 = 96	96 ÷ 8 = 12

Key Vocabulary

What is 4 **multiplied by** 6?

What is 8 **times** 4?

What is 24 **divided by** 4?

What is 8 **multiplied by** 6?

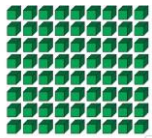
What is 8 **times** 8?

What is 24 **divided by** 8?

They should be able to answer these questions in any order, including missing number questions e.g. 4 × ◯ = 16 or ◯ ÷ 4 = 7.

2 × 4 array

4 × 2 array



3 rows of 9 = ☐

Top Tips

Tricks:

What do you already know? – Your child will already know many of these facts from the 2, 3, 5 and 10 times tables.

Double and double again – Multiplying a number by 4 is the same as doubling and doubling again. Double 6 is 12 and double 12 is 24, so 6 × 4 = 24.

Double your fours – Multiplying a number by 8 is the same as multiply by 4 and then doubling the answer. 8 × 4 = 32 and double 32 is 64, so 8 × 8 = 64.

Five six seven eight – fifty-six is seven times eight (56 = 7 × 8).

Buy one get three free – If your child knows one fact (e.g. 12 × 4 = 48), can they tell you the other three facts in the same fact family?

Online songs – https://www.bbc.co.uk/teach/supermovers/times-table-collection/z4vv6v4

Online games - https://www.topmarks.co.uk/maths-games/hit-the-button
https://www.topmarks.co.uk/maths-games/mental-maths-train

Key Instant Recall Facts

Year 4 – Spring 1

I know the multiplication and division facts for the 11 and 12 times tables.

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

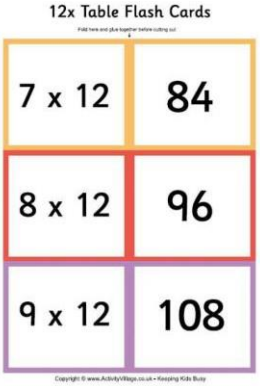
11 × 1 = 11	11 ÷ 11 = 1	12 × 1 = 12	12 ÷ 12 = 1
11 × 2 = 22	22 ÷ 11 = 2	12 × 2 = 24	24 ÷ 12 = 2
11 × 3 = 33	33 ÷ 11 = 3	12 × 3 = 36	36 ÷ 12 = 3
11 × 4 = 44	44 ÷ 11 = 4	12 × 4 = 48	48 ÷ 12 = 4
11 × 5 = 55	55 ÷ 11 = 5	12 × 5 = 60	60 ÷ 12 = 5
11 × 6 = 66	66 ÷ 11 = 6	12 × 6 = 72	72 ÷ 12 = 6
11 × 7 = 77	77 ÷ 11 = 7	12 × 7 = 84	84 ÷ 12 = 7
11 × 8 = 88	88 ÷ 11 = 8	12 × 8 = 96	96 ÷ 12 = 8
11 × 9 = 99	99 ÷ 11 = 9	12 × 9 = 108	108 ÷ 12 = 9
11 × 10 = 110	110 ÷ 11 = 10	12 × 10 = 120	120 ÷ 12 = 10
11 × 11 = 121	121 ÷ 11 = 11	12 × 11 = 132	132 ÷ 12 = 11
11 × 12 = 132	132 ÷ 11 = 12	12 × 12 = 144	144 ÷ 12 = 12

Key Vocabulary

What is 8 **multiplied by** 11?

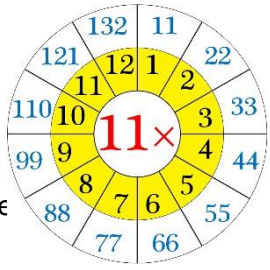
What is 6 **times 12**?

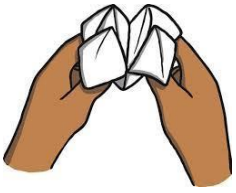
What is 24 **divided by** 12?



They should be able to answer these questions in any order, including missing number questions e.g. 9 × ◯ = 99 or ◯ ÷ 12 = 8.

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





Top Tips

Look for patterns – These times tables are full of patterns for your child to find. How many can they spot?

Use your ten times table – What happens if you add your original number instead? (e.g. 7 × 10 + 7 = 70 + 7 = 77)

What do you already know? – Your child will already know many of these facts from the 2, 3, 4, 5, 6, 8 and 10 times tables. It might be worth practising these again!

Online songs – https://www.bbc.co.uk/teach/supermovers/times-table-collection/z4vv6v4

Online games - https://www.topmarks.co.uk/maths-games/hit-the-button
https://www.topmarks.co.uk/maths-games/mental-maths-train

Create a fortune teller to practise - https://www.llanhariprimary.com/resources/home_learning/class_5/blended_1/Group%20Glas%20Fortune%20Teller.pdf

Key Instant Recall Facts

Year 5 – Spring 1

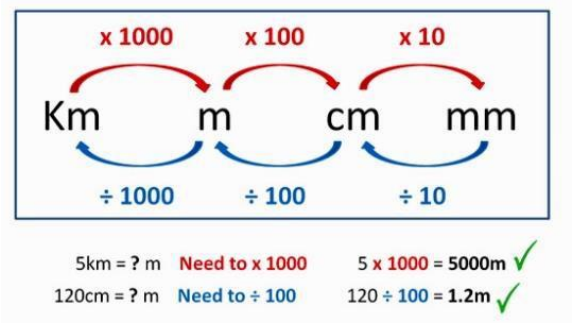
I can recall metric conversions.

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

1 kilogram = 1000 grams

1 kilometre = 1000 metres
1 metre = 100 centimetres
1 metre = 1000 millimetres
1 centimetre = 10 millimetres

1 litre = 1000 millilitres



They should also be able to apply these facts to answer questions.
e.g. How many metres in 1½ km?

Key Vocabulary

Kilogram (kg)
Gram (g)
Kilometre (km)
Metre (m)
Centimetre (cm)
Millimetre (mm)
Litre (l)
Millilitres (ml)

Convert 100mm to cm.

How many metres are **equivalent** to one kilometre?

Top Tips

Look at the prefixes – Can your child work out the meanings of *kilo-*, *centi-* and *milli-*? What other words begin with these prefixes?

Be practical – Help out in the kitchen and follow a recipe. Do some baking/cooking and convert the measurements in the recipe or get crafty and practise measuring using a variety of units.

How far? – Calculate some distances using unusual measurements. How tall is your child in mm? How far away is London in metres?

Measure up- measure the length, mass and volume of different items in your home. Show the measurements in different units of measures.

Online tutorials – BBC bitesize explains metric conversions and has quizzes too…Converting metric units - Maths - Learning with BBC Bitesize - BBC Bitesize

Play games - Metric Units (transum.org)

Key Instant Recall Facts

Year 6 – Spring 1

I know decimal and percentage equivalents for fractions ½, ¼, ¾, 1/3, 2/3 including tenths and fifths.

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

$\frac{1}{2} = 0.5 = 50\%$

$\frac{1}{4} = 0.25 = 25\%$

$\frac{3}{4} = 0.75 = 75\%$

$\frac{1}{10} = 0.1 = 10\%$

$\frac{1}{5} = 0.2 = 20\%$

$\frac{3}{5} = 0.6 = 60\%$

$\frac{9}{10} = 0.9 = 90\%$

$\frac{1}{100} = 0.01 = 1\%$

$\frac{7}{100} = 0.07 = 7\%$

$\frac{21}{100} = 0.21 = 21\%$

$\frac{75}{100} = 0.75 = 75\%$

$\frac{99}{100} = 0.99 = 99\%$

Key Vocabulary

How many **tenths** is 0.8?

How many **hundredths** is 0.12?

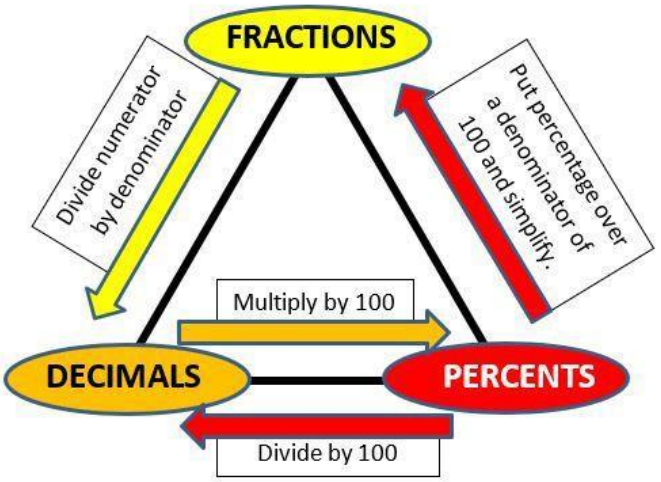
Write 0.75 as a **fraction**?

Write ¼ as a **decimal**?

What is the **equivalent percentage** of 81 hundredths?

Scan the QR code to take you to the 'Match Fractions, Decimals and Percentages' game.

Children should be able to convert between decimals, fractions and percentages for ½, ¼, ¾ and any number of tenths and hundredths.



Top Tips

Remember: Percent means 'out of 100' so use place value after converting to decimals – look at the hundredths and tenths as a clue.

Play games - Make some cards with pairs of equivalent fractions and decimals. Use these to play the memory game or snap. Or make your own dominoes with fractions on one side and decimals on the other.

Online games - Match Fractions Decimals and Percentages - Mathsframe

FDP Poster- create a poster which explains how to convert between fractions, decimals and percentages

Let's go shopping- look out for percentages when out shopping. What is 25% as a decimal?