



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.

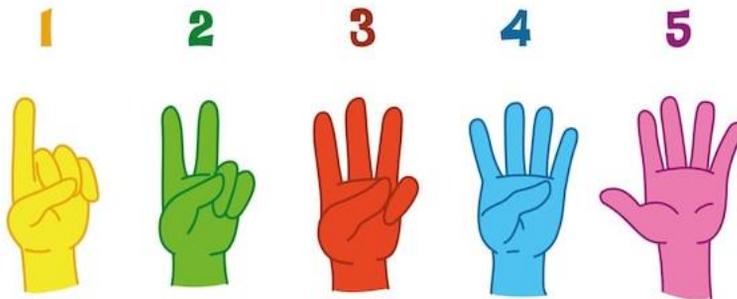


Key Instant Recall Facts

Nursery – Summer 1

I can represent numbers to 5 by using fingers, mark making and finding items.

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

before

after



Top Tips

Out and about - Write numbers in the sand on the beach, in mud in the garden or at the park, with water on the pavement etc. Get your child to try to copy them.

Songs and rhymes e.g. 'One, two, three, four, five, once I caught a fish alive' and 'One man went to mow'. Demonstrate the numbers using your fingers as you listen. Encourage your child to copy.

You could watch some counting songs/videos –

[Numbers from 1 to 5 - Numbers Songs - Learn to Count - 1, 2, 3, 4 and 5 – YouTube](#)

[Counting 1 to 5 | Number Songs | PINKFONG Songs for Children – YouTube](#)

Online apps and games – Many free apps and online games allow children to practice forming their numbers. <https://plays.org/number-writing/>

Fun and Games – Set your child a treasure hunt: can they find 3 toy cars or 4 pieces of fruit etc.? Can they count out 5 items (e.g. peas) on their plate at mealtimes?

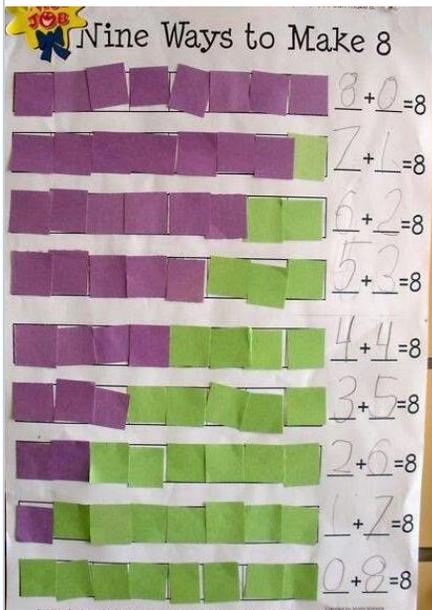


Key Instant Recall Facts

Reception – Summer 1

I can partition numbers to 10 into 2 groups.

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

How many ways can you make 7?

Partition 9 into two groups.

Top Tips

Be practical with toys-

Use toys, figures, pegs (anything!) to partition a number into 2 groups.

The following website has an idea to make a cave and use bears to show 2 groups (inside and outside) – though you could use other toys.

[Mrs Ward's Land of the Little Learners: Emergent & Partitioning of Numbers](#)

Use lego or bricks– how many different towers of 1-10 can you make using 2 colours of lego?

In the kitchen - putting things into two containers in different ways

making a number with two different kinds of things. For example, make a fruit skewer with five pieces of fruit, using bowls of bananas/strawberries to choose from; then ask the children to describe how they have made theirs.



Key Instant Recall Facts

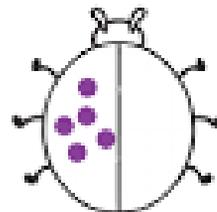
Year 1 – Summer 1

I know all doubles and halves of even numbers up to 20.

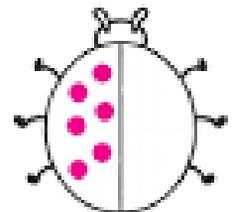
By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

$0 + 0 = 0$	$\frac{1}{2}$ of $0 = 0$	
$1 + 1 = 2$	$\frac{1}{2}$ of $2 = 1$	$11 + 11 = 22$
$2 + 2 = 4$	$\frac{1}{2}$ of $4 = 2$	$12 + 12 = 24$
$3 + 3 = 6$	$\frac{1}{2}$ of $6 = 3$	$13 + 13 = 26$
$4 + 4 = 8$	$\frac{1}{2}$ of $8 = 4$	$14 + 14 = 28$
$5 + 5 = 10$	$\frac{1}{2}$ of $10 = 5$	$15 + 15 = 30$
$6 + 6 = 12$	$\frac{1}{2}$ of $12 = 6$	$16 + 16 = 32$
$7 + 7 = 14$	$\frac{1}{2}$ of $14 = 7$	$17 + 17 = 34$
$8 + 8 = 16$	$\frac{1}{2}$ of $16 = 8$	$18 + 18 = 36$
$9 + 9 = 18$	$\frac{1}{2}$ of $18 = 9$	$19 + 19 = 38$
$10 + 10 = 20$	$\frac{1}{2}$ of $20 = 10$	$20 + 20 = 40$

Ladybird Doubles



Double 4 is _____



Double 6 is _____

Ladybird Halves



$\frac{1}{2}$ of $2 = 1$
Half of two is one



$\frac{1}{2}$ of $4 = 2$
Half of four is two



$\frac{1}{2}$ of $6 = 3$
Half of six is three



$\frac{1}{2}$ of $8 = 4$
Half of eight is four



$\frac{1}{2}$ of $10 = 5$
Half of ten is five

Key Vocabulary

What is **double** 9?

What is **half** of 14?

Top Tips

Use what you already know – Encourage your child to find the connection between the 2 times table and double facts.

Get drawing – get children to finish off ladybird pictures to work out doubles, or give them a complete ladybird and get them to count one side to work out half.

Ping Pong – In this game, the parent says, “Ping,” and the child replies, “Pong.” Then the parent says a number and the child doubles it. For a harder version, the adult can say, “Pong.” The child replies, “Ping,” and then halves the next number given.

Practise online – [Daily 10 - Mental Maths Challenge – Topmarks](#) (Choose level 2, doubles/halves)



Key Instant Recall Facts

Year 2 – Summer 1

I know the halves of 1, 3, 5, 7 and 9 as a fraction.

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

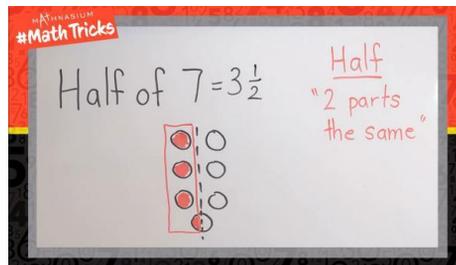
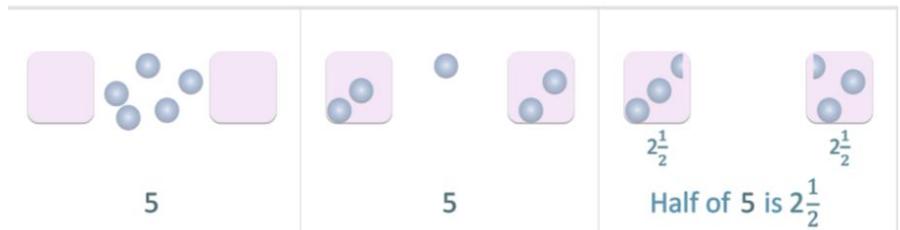
$$\frac{1}{2} \text{ of } 1 = \frac{1}{2}$$

$$\frac{1}{2} \text{ of } 3 = 1 \frac{1}{2}$$

$$\frac{1}{2} \text{ of } 5 = 2 \frac{1}{2}$$

$$\frac{1}{2} \text{ of } 7 = 3 \frac{1}{2}$$

$$\frac{1}{2} \text{ of } 9 = 4 \frac{1}{2}$$



Key Vocabulary

What is **half** of 5?

What is 7 **divided by** 2?

They should be able to answer these questions in any order, including missing number questions e.g. $\frac{1}{2}$ of 9 = \bigcirc or $3 \frac{1}{2} \times 2 = \bigcirc$.

Top Tips

To halve an odd number: subtract one, halve it and then add a half.

Use online tutorials –

[Halving Odd Numbers - Maths with Mum](#)

[H&D4 finding half of the odd numbers less than 10 – YouTube](#)

Draw it – draw out circles and colour in half – remember that the last one has to be split down the middle equally.

Use practical resources – when cooking for instance, divide items like carrots into 2 equal piles (notice you can halve the even amount, but you will need to cut the last one)



Key Instant Recall Facts

Year 3 – Summer 1

I know multiplication and division facts for x3, x6 and x9 tables.

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

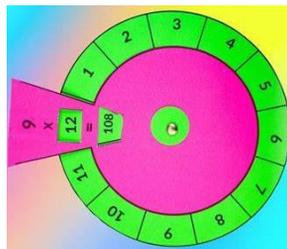
$3 \times 1 = 3$	$3 \div 3 = 1$	$6 \times 1 = 6$	$6 \div 6 = 1$	$9 \times 1 = 9$	$9 \div 9 = 1$
$3 \times 2 = 6$	$6 \div 3 = 2$	$6 \times 2 = 12$	$12 \div 6 = 2$	$9 \times 2 = 18$	$18 \div 9 = 2$
$3 \times 3 = 9$	$9 \div 3 = 3$	$6 \times 3 = 18$	$18 \div 6 = 3$	$9 \times 3 = 27$	$27 \div 9 = 3$
$3 \times 4 = 12$	$12 \div 3 = 4$	$6 \times 4 = 24$	$24 \div 6 = 4$	$9 \times 4 = 36$	$36 \div 9 = 4$
$3 \times 5 = 15$	$15 \div 3 = 5$	$6 \times 5 = 30$	$30 \div 6 = 5$	$9 \times 5 = 45$	$45 \div 9 = 5$
$3 \times 6 = 18$	$18 \div 3 = 6$	$6 \times 6 = 36$	$36 \div 6 = 6$	$9 \times 6 = 54$	$54 \div 9 = 6$
$3 \times 7 = 21$	$21 \div 3 = 7$	$6 \times 7 = 42$	$42 \div 6 = 7$	$9 \times 7 = 63$	$63 \div 9 = 7$
$3 \times 8 = 24$	$24 \div 3 = 8$	$6 \times 8 = 48$	$48 \div 6 = 8$	$9 \times 8 = 72$	$72 \div 9 = 8$
$3 \times 9 = 27$	$27 \div 3 = 9$	$6 \times 9 = 72$	$72 \div 6 = 9$	$9 \times 9 = 81$	$81 \div 9 = 9$
$3 \times 10 = 30$	$30 \div 3 = 10$	$6 \times 10 = 60$	$60 \div 6 = 10$	$9 \times 10 = 90$	$90 \div 9 = 10$
$3 \times 11 = 33$	$33 \div 3 = 11$	$6 \times 11 = 66$	$66 \div 6 = 11$	$9 \times 11 = 99$	$99 \div 9 = 11$
$3 \times 12 = 36$	$36 \div 3 = 12$	$6 \times 12 = 72$	$72 \div 6 = 12$	$9 \times 12 = 108$	$108 \div 9 = 12$

Key Vocabulary

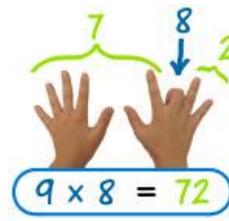
What is 8 multiplied by 6?

What is 6 times 8?

What is 24 divided by 6?



Top Tips



Look for patterns – These times tables are full of patterns for your child to find. How many can they spot? e.g. the digits of all multiples of 9 add up to 9; in the 9 times table the tens go up, whilst the ones go down.

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! Also, if they find the 11 times table easy, use this to work out the 12 times table.

Apps Aplenty! – There are many free apps to download which help children to practise times tables. Try a few and see what engages your child – delete it and try another if not!

Use song and dance – [Times tables collection - BBC Teach](#)
[Times Tables Songs 1-12 for Kids | 23 Minute Compilation from Silly School Songs! – YouTube](#)

Online games - [Times Tables Games \(topmarks.co.uk\)](#)
[Free multiplication games at Timestables.com](#)



Key Instant Recall Facts

Year 4 – Summer 1

I know decimal equivalents for fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, $\frac{1}{3}$, $\frac{2}{3}$ and tenths.

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

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

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

$$\frac{6}{10} = 0.6$$

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

$$\frac{2}{10} = 0.2$$

$$\frac{7}{10} = 0.7$$

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

$$\frac{3}{10} = 0.3$$

$$\frac{8}{10} = 0.8$$

$$\frac{1}{3} = 0.33$$

$$\frac{4}{10} = 0.4$$

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

$$\frac{2}{3} = 0.66$$

$$\frac{5}{10} = 0.5$$

$$\frac{10}{10} = 1.0$$

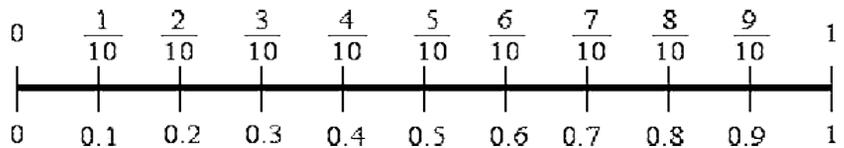
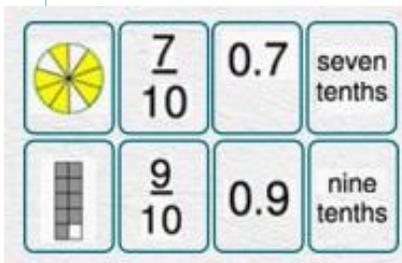
Key Vocabulary

How many **tenths** is 0.8?

Write 0.75 as a **fraction**?

Write $\frac{1}{4}$ as a **decimal**?

What decimal is $\frac{1}{4}$
equivalent to?



Top Tips

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.

Mind the Gap! - Have a go at making a number line and adding post it notes with fractions and decimals. Test yourself by removing some and saying what is missing, or by mixing it up.

Flash Cards - Make double sided flash cards that your child can use to self-check their answer (or you can test them).

Online games and quizzes - [Interactive Math Lesson | Decimals to Tenths \(iknowit.com\)](#)
[Fractions to Decimals - Fruit Splat Math Game - Sheppard Software Educational Games for kids](#)



Key Instant Recall Facts

Year 5 – Summer 1

I know factor pairs of a number (up to 12×12).

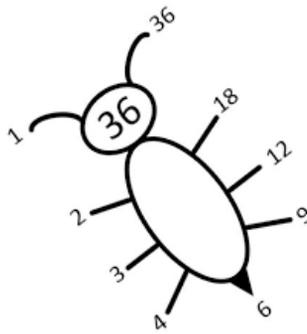
By the end of this half term, children should know the following facts. The aim is for them to recall these facts **instantly**.

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:

$$\begin{array}{ll} 24 = 4 \times 6 & 36 = 12 \times 3 \\ 24 = 8 \times 3 & 36 = 9 \times 4 \\ 24 = 12 \times 2 & 36 = 6 \times 6 \end{array}$$

$$\begin{array}{l} 20 = 10 \times 2 \\ 20 = 5 \times 4 \end{array}$$

Factor Rainbow for 24



Key Vocabulary

Can you find a **factor** of 28?

Find two numbers whose **product** is 20.

I know that 6 is a factor of 72 because 6 multiplied by 12 equals 72.

Factors: The numbers that are multiplied to give a product

Example:

$$\begin{array}{ccc} \text{Factors} & & \text{Product} \\ \downarrow & & \downarrow \\ 3 \times 4 = 12 \end{array}$$

Top Tips

Play games - [Math Lines Multiplication](#) | [Math Playground Swimming Otters Multiplication](#) | [Math Playground Arithmetic 1.0.26 \(colorado.edu\)](#)

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 online tests - [Factor pairs \(practice\)](#) | [Khan Academy](#)

Factor Bugs - [Draw factor bugs to recognise factors, prime numbers and square numbers - YouTube](#)



Key Instant Recall Facts

Year 6 – Summer 1

Consolidation of Arithmetic Knowledge

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

Children should be comfortable using all four operations (addition, subtraction, multiplication and division).

Examples of core arithmetic knowledge:

- ▶ All multiplication and division facts up to 12×12 .
- ▶ How to find common multiples and factors
- ▶ Calculations (all 4 operations) involving fractions, decimals and percentages.
- ▶ Prime numbers and divisibility rules.
- ▶ Inverse of each operation e.g. inverse of multiply is divide, inverse of addition is subtraction
- ▶ Metric measurement conversions.
- ▶ Number bonds (to 10, 20, 50, 100, 1000 etc.)



Top Tips

Revise little and often – be kind to your brain! The following online game has many different topics (for yr 6, choose level 6) - [Daily 10 - Mental Maths Challenge – Topmarks](#)

Other mixed arithmetic online practise –

[Y6 Arithmetic Practice – Mathsframe](#)

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

Focus on the tricky bits – It's tempting to keep 'practicing' things that you are doing well on, but this isn't the most effective use of time. Tackle those topics that are harder first. BBC Bitesize has an overview of Yr 6 learning objectives, with tutorials and activities to help revise. [KS2 Maths - BBC Bitesize](#)