



Maths

Key Instant Recall Facts

To help develop children's fluency in Mathematics, each half term we ask them to learn Key Instant Recall Facts (KIRFs).

The lists of KIRFs have been created to align with the National Curriculum and the end of year expectations for each year group. Children will be taught the foundations and necessary Maths in lessons beforehand, introducing them to specific visual models to support their understanding.

We expect the majority of children within a year group to be working towards these targets. Children should know these thoroughly and be able to recall the facts instantly for their year group. By helping to develop these skills, your child will be more able to access other areas of the Maths curriculum such as calculation methods, problem solving and reasoning. If your child is struggling to recall facts, please concentrate on a smaller number and practise more frequently.

Thank you for your support,
Miss Cole

Headteacher and Maths Leader



Key Instant Recall Facts

Year 5 – Autumn 1

I can find factor pairs of a number.

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:

$$24 = 4 \times 6$$

$$24 = 8 \times 3$$

$$56 = 7 \times 8$$

$$54 = 9 \times 6$$

$$42 = 6 \times 7$$

$$25 = 5 \times 5$$

$$84 = 7 \times 12$$

$$15 = 5 \times 3$$

Key Vocabulary

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.

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 have a fact of the day. If you would like more ideas, please speak to your child's teacher.

Play games - There is an activity at www.conkermaths.org to practise 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.



Key Instant Recall Facts

Year 5 – Autumn 2

I can identify prime 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**.

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

The following numbers are prime numbers:

2, 3, 5, 7, 11, 13, 17, 19

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

Key Vocabulary

prime number

composite number

factor

multiple

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.

Top Tips

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It's really important that your child uses mathematical vocabulary accurately. Choose a number between 2 and 20. How many correct statements can your child make about this number using the vocabulary above?

Make a set of cards for the numbers from 2 to 20. How quickly can your child sort these into prime and composite numbers? How many even prime numbers can they find? How many odd composite numbers?



Key Instant Recall Facts

Year 5 – Spring 1

I know the multiplication and division facts for all times tables 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**.

Please see separate sheet for all times table facts.

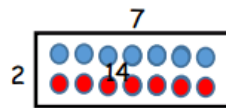
Key Vocabulary

What is 12 multiplied by 6?
What is 7 times 8?
What is 84 divided by 7?
What is the **whole**?
What are the **parts**?

Key Imagery:

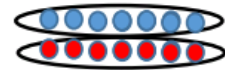
Prove using array:

Eg- $7 \times 2 = 14$



(the parts are 7 and 2 and the whole is 14)

Prove using array using grouping $14 \div 2 = 7$



They should be able to answer these questions in any order, including missing number questions e.g. $7 \times \bigcirc = 28$ or $\bigcirc \div 6 = 7$.

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 have a fact family of the day. If you would like more ideas, please speak to your child's teacher.

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.

Online games – There are many games online which can help children practise their multiplication and division facts. www.conkermaths.org is a good place to start.

Use memory tricks – For those hard-to-remember facts, www.multiplication.com has some strange picture stories to help children remember.

Make a poster- Record the fact families for each multiplication times table, for example:

$7 \times 10 = 70$

$7 \times \underline{\quad} = 70$

$10 \times 7 = 70$

to make it harder, try removing some of the parts e.g. $\underline{\quad} \div 7 = 10$

Key Instant Recall Facts

Year 5 – Spring 2

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

$$\begin{aligned}\sqrt{1} &= 1 \\ \sqrt{4} &= 2 \\ \sqrt{9} &= 3 \\ \sqrt{16} &= 4 \\ \sqrt{25} &= 5 \\ \sqrt{36} &= 6 \\ \sqrt{49} &= 7 \\ \sqrt{64} &= 8 \\ \sqrt{81} &= 9 \\ \sqrt{100} &= 10 \\ \sqrt{121} &= 11 \\ \sqrt{144} &= 12\end{aligned}$$

I can recall square numbers up to 12^2 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**.

$$\begin{array}{ll}1^2 = 1 \times 1 = 1 & \sqrt{1} = 1 \\2^2 = 2 \times 2 = 4 & \sqrt{4} = 2 \\3^2 = 3 \times 3 = 9 & \sqrt{9} = 3 \\4^2 = 4 \times 4 = 16 & \sqrt{16} = 4 \\5^2 = 5 \times 5 = 25 & \sqrt{25} = 5 \\6^2 = 6 \times 6 = 36 & \sqrt{36} = 6 \\7^2 = 7 \times 7 = 49 & \sqrt{49} = 7 \\8^2 = 8 \times 8 = 64 & \sqrt{64} = 8 \\9^2 = 9 \times 9 = 81 & \sqrt{81} = 9 \\10^2 = 10 \times 10 = 100 & \sqrt{100} = 10 \\11^2 = 11 \times 11 = 121 & \sqrt{121} = 11 \\12^2 = 12 \times 12 = 144 & \sqrt{144} = 12\end{array}$$

Key Vocabulary

What is 8 **squared**?
What is 7 **multiplied by itself**?
What is the **square root** of 144?
Is 81 a **square number**?

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

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 have a fact of the day. If you would like more ideas, please speak to your child's teacher.

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?

Use memory tricks – For those hard-to-remember facts, www.multiplication.com has some strange picture stories to help children remember.



Key Instant Recall Facts

Year 5 – Summer 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**.

Mass

1 kilogram = 1000 grams

Length/Distance

1 kilometre = 1000 metres

1 metre = 100 centimetres

1 metre = 1000 millimetres

1 centimetre = 10 millimetres

Capacity

1 litre = 1000 millilitres

They should also be able to apply these facts to answer questions.

e.g. How many metres in $1\frac{1}{2}$ km?

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 have a fact of the day. If you would like more ideas, please speak to your child's teacher.

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 – Do some baking and convert the measurements in the recipe.

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



Key Instant Recall Facts

Year 5 – Summer 2

I know decimal number bonds to 1 and 10.

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:

$$\begin{array}{ll} 0.6 + 0.4 = 1 & 3.7 + 6.3 = 10 \\ 0.4 + 0.6 = 1 & 6.3 + 3.7 = 10 \\ 1 - 0.4 = 0.6 & 10 - 6.3 = 3.7 \\ 1 - 0.6 = 0.4 & 10 - 3.7 = 6.3 \end{array}$$

$$\begin{array}{ll} 0.75 + 0.25 = 1 & 4.8 + 5.2 = 10 \\ 0.25 + 0.75 = 1 & 5.2 + 4.8 = 10 \\ 1 - 0.25 = 0.75 & 10 - 5.2 = 4.8 \\ 1 - 0.75 = 0.25 & 10 - 4.8 = 5.2 \end{array}$$

This list includes some examples of facts that children should know. They should be able to answer questions including missing number questions e.g. $0.49 + \bigcirc = 10$ or $7.2 + \bigcirc = 10$.

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?

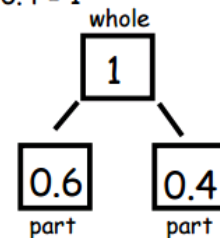
What is the **whole**?

What are the **parts**?

Key Imagery:

Prove using whole/part model:

Eg- $0.6 + 0.4 = 1$



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 have a fact of the day. If you would like more ideas, please speak to your child's teacher.

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?

Play games – There are missing number questions at www.conkermaths.org. See how many questions you can answer in just 90 seconds. There is also a number bond pair game to play.