Key Instant Recall Facts

Year 6 – Autumn 1

Key Instant Recall Facts

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 all multiplication and division facts for all tables up to 12 x 12.

The aim is for them to recall these facts instantly.

0	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	23	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Key Vocabulary

What is 12 **multiplied by** 6?

What is 7 **times** 8?

What is 84 **divided by** 7?

They should be able to answer these questions in any order, including missing number questions e.g. 7 × ◯ = 28 or ◯ ÷ 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 of the day.

Key Instant Recall Facts

Year 6 – Autumn 1

Make it fun!

- Play Fizz Buzz. Choose two tables eg: 5 and 8 times. Take it in turns to count in ones starting from 1. If a number is in the 5 x tables say 'Fizz' instead of the number and if it's in the 8 x tables say 'Buzz'. If the number is in both tables, like 40, you would say 'FizzBuzz'.
- 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.
- http://www.mathsisfun.com/tables.html
- http://www.snappymaths.com/multdiv/1to12xtab/interactive/1to12ximm/1to12ximm.htm
- http://www.mathsatplantsbrook.co.uk/Primary/games/qtn_MultipleWipe.swf
- http://www.echalk.co.uk/Maths/tables/cloudTables.html
- http://www.amblesideprimary.com/ambleweb/mentalmaths/tabletrees.html
- http://www.mathsisfun.com/quiz/mixtimes.html
- Test the Parent – Your child can make up their own tricky division questions for you e.g. What is 42 divided by 7? They need to be able to multiply to create these questions.
- Timed Games: How well are you doing? How many questions can you answer in 2 minutes. Can you beat your own record?
- Games at www.multiplication.com and www.SumDog.com

Broaden and apply

http://nrich.maths.org/1070 Mystery Matrix

Key Instant Recall Facts

http://nrich.maths.org/1066 Investigate 'the Moons of Vuvv'

http://nrich.maths.org/1119 One wasn't square' investigation

http://nrich.maths.org/7218 Curious Number investigation

Fill in the missing numbers: 8 ÷ 2 = □ ÷ 4 = 32 ÷ □ = 64 ÷ □ Can you make up more missing number questions like this?

Key Instant Recall Facts

Year 6 – Autumn 2

Key Instant Recall Facts

I can convert between decimals, fractions and percentages.

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

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

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

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

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

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

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

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**?

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

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

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

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

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

Top Tips

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Key Instant Recall Facts

Year 6 – Autumn 2

Key Instant Recall Facts

Make it fun!

- Play games - Make some cards equivalent fractions, decimals and percentages. Use these to play a memory game or snap. A printable set of cards can be found at http://old.skillsworkshop.org/n2/l1l2n2happyfamiliesdecfractpercent.pdf
- http://www.wldps.com/gordons/F_D_P_balance.swf
- http://mathsframe.co.uk/en/resources/resource/120/match_fractions_decimals_and_percentages#.UCdcd2MsCEY
- http://www.mathplayground.com/matching_fraction_percent.html
- http://nrich.maths.org/1249 Match decimals, fractions and %
- http://www.mathplayground.com/Decention/Decention.html

Broaden and apply - enrichment

Put these numbers in the correct order, starting with the largest.
7/10, 0.73, 7/100, 0.073 71% Explain your thinking.

Which is longer 25% of 23km or 0.2 of 20km. Convince me.

Put the following amounts in order, starting with the largest.
23%, 5/8, 3/5, 0.8 Explain your reasoning.

Jakob says to Peter, 'Last month I saved 0. 5 of my pocket money and this month I saved 1 3 of my pocket money, so altogether I've saved 40% of my pocket money'. Do you think Peter should agree with Jakob? Explain your decision.

Last month Kira saved 3 5 of her £10 pocket money. She also saved 15% of her £20 birthday money. How much did she save altogether?

Key Instant Recall Facts

Key Instant Recall Facts

Year 6 – Spring 1

I can recall and use metric conversions.

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? Convert 40g into kg? Which is smaller 460ml or 0.4l?

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.

Key Instant Recall Facts

Year 6 = Spring 1

Key Instant Recall Facts

Make it fun!

- 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?
- http://www.wldps.com/gordons/Dart_Board_-_measures.swf Use the input option
- http://www.wldps.com/gordons/Bingo_-_measures.swf
- http://mrnussbaum.com/soup/ Use conversions when making 'horrendous' soup
- http://mathszone.webspace.virginmedia.com/mw/measures/Understand%20&%20Convert.swf Convert with fractions
- http://www.thatquiz.org/tq-n/science/metric-system/

Broaden and apply - enrichment

http://nrich.maths.org/5994 All in a jumble investigation
http://nrich.maths.org/8318 Investigate Olympic Measures

Which has the greater mass? 1/5 kg or 1/10 kg Explain why.

True or false for each of these?
1·5 kg + 600 g = 2·1 kg + 300 g
32 cm + 1·05 m = 150 cm – 0·13 m
3/4 ℓ + 0.05 ℓ = half of 1·6 ℓ
Explain your reasoning.

A 1·2 m ribbon and a 90 cm ribbon are joined by overlapping the ends and gluing them together. The total length of ribbon needs to be 195 cm long. How much should the two pieces overlap?

A football weighs 0·4 kg. Three footballs weigh the same as eight cricket balls.

Key Instant Recall Facts

How many grams does a cricket ball weigh?

Key Instant Recall Facts

Year 6 – Spring 2

I can identify prime numbers up to 100.

By the end of this half term, children should be able to work out which numbers up to 100 are prime by applying tests of divisibility.

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

The following numbers are the prime numbers up below 100:

2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97

A composite number is divisible by a number other than 1 or itself.

The following numbers are the composite numbers up to 50:

4, 6, 8, 9, 10, 12, 14, 15, 16, 18, 20, 22, 24, 25, 26, 27, 28, 30, 32, 34, 35, 36, 38, 39, 40, 42, 44, 45, 46, 48, 49, 50

Key Vocabulary

prime number
composite
number factor
multiple

Children should be able to explain how they know that a num e wisely.
E.g. 15 is composite because it is a multiple of 3 and 5.

Top Tips

The secret to success is practising **little** and **often**

Can you practise these KIRFs while walking to school or dur journey?

You don't need to practise them all at once: perhaps you cou of the day.

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

Key Instant Recall Facts

Year 6 – Spring 2

Make it fun!

- Make a set of cards for the numbers from 2 to 100. 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?
- http://inteleducationresources.intel.co.uk/content/primary/maths/factors/index.html
- http://www.transum.org/Software/Game/Connect4/
- http://inteleducationresources.intel.co.uk/content/primary/maths/prime_numbers/index.html
- http://www.sheppardsoftware.com/mathgames/numbers/fruit_shoot_prime.htm
- Colour the prime numbers on a 100 square. See this website for how to do this: http://www.teachingideas.co.uk/maths/prime.htm What do they notice about their positions?

Broaden and apply

https://nrich.maths.org/5468 Factors and multiples problem

http://nrich.maths.org/1153 Penta primes investigation

http://nrich.maths.org/1150 Two primes make one square investigation

Captain Conjecture says, 'Factors come in pairs so all numbers have an even number of factors.' Do you agree? Explain your reasoning.

Key Instant Recall Facts

Is it always, sometimes or never true that prime numbers are next to a multiple of 6? Explain your answer.

Use 3 and 5 or 2 and 3 as factors to make some numbers. What do you notice about these numbers? What if you used some other prime factors? Why?

Key Instant Recall Facts

Year 6 – Summer 1

Key Instant Recall Facts

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

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

Key Vocabulary What is 8 **squared**?

What is 7 **multiplied by itself**?

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

Is 81 a **square number**?

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

$\sqrt{121} = 11$
$\sqrt{144} = 12$

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

Top Tips

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Can you practise these KIRFs while walking to school or during a car journey?

Key Instant Recall Facts

You don't need to practise them all at once: perhaps you could have a fact of the day.

Key Instant Recall Facts

Year 6 – Summer 1

Make it fun!

- http://inteleducationresources.intel.co.uk/content/primary/maths/factors/index.html
- http://www.transum.org/Software/Game/Connect4/
- http://inteleducationresources.intel.co.uk/content/primary/maths/prime_numbers/index.html
- http://www.oswego.org/ocsd-web/games/spookyseq/spookysqno.html
- http://www.topmarks.co.uk/maths-games/hit-the-button Choose square numbers
- http://www.math-play.com/square-root-game.html

Broaden and apply

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

For each of the following, try a few examples and see what you notice.

Add two consecutive square numbers and then subtract 1

Square any odd number, then subtract 1

Multiply two consecutive odd numbers and then add 1 Multiply

two consecutive even numbers and then add 1

Can you explain what you've noticed?

Can you prove that it will always happen?

http://nrich.maths.org/2275 How do you find the sum of consecutive odd numbers quickly?

Can you make **square numbers** by adding two prime numbers together?

Key Instant Recall Facts

Is it always, sometimes or never true that when you square an even number, the result is divisible by 4? Explain your answer.

Key Instant Recall Facts