



Key Instant Recall Facts

Year 6 – Autumn

I know the square roots and squares of numbers to 15 x 15.

I know the prime numbers to 100.

I know the order of operations.

Square numbers: The first 15 square numbers are: **1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196 and 225.**

Square numbers are the result when the same number is multiplied by itself. For example: $13 \times 13 = 169$ so 169 is the square number.

Square roots: The square root of a number is the number which you multiplied by itself

to give you the original number. $\sqrt{\quad}$ so $\sqrt{9} = 3$

Prime numbers: All of these numbers only have 2 factors one and themselves. They have no other factors. All other numbers are called **composite** numbers. The prime numbers to 100 are: **2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89 and 97**

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 and a multiple of 1 and 15.

Order of operations: 'BIDMAS' which stands for (Brackets, Indices, Division and Multiplication, Addition and Subtraction) This is the order which different operations should be completed. Indices - examples we have learnt about include squares and cubes e.g. $2^2 = 2 \times 2$ and $4^3 = 4 \times 4 \times 4$ So $3 + 5 \times 2$ means complete 5×2 first and then add 3 using BIDMAS.

Key vocabulary: factor, square, square root, composite, prime.

Top tips to help with learning:

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.

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? E.g. 16. 16 is a square number because 4 squared is 16. The square root of 16 is 4. 1, 16, 2, 8 and 4 are all factors of 16. 16 is a composite number. 16 is not a prime number because it has more factors than one and itself.



Key Instant Recall Facts

Year 6 – Autumn

I know decimal complements to total 10 (two-decimal places).

Make pairs of two-decimal place numbers which add to make 10. Examples include:

$3.45 + 6.55$

$1.34 + 8.66$

$3.87 + 6.13$

$5.32 + 4.68$

Children should notice that the ones add to make 9, the tenths add to make 9 and the hundredths add to make 10.

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Children should make links with their prior learning in year 3 – complements to 100, year 4 one decimal place complements to 1 and year 5 two decimal place decimal complements to 10.

$$\text{For example: } 34 + 66 = 100 \quad 3.4 + 6.6 = 10 \quad 0.34 + 0.66 = 1 \\ 1.34 + 8.34 = 10$$

Connect 4:

$10 - 1.23$	$10 - 3.56$	$10 - 1.34$	$10 - 4.56$	$10 - 7.82$
$10 - 7.11$	$10 - 4.65$	$10 - 6.78$	$10 - 0.87$	$10 - 2.09$
$10 - 3.45$	$10 - 5.87$	$10 - 4.76$	$10 - 5.62$	$10 - 8.91$
$10 - 8.79$	$10 - 5.63$	$10 - 5.13$	$10 - 4.01$	$10 - 5.32$
$10 - 4.11$	$10 - 5.63$	$10 - 9.91$	$10 - 1.98$	$10 - 2.09$

Find the complement. First person to get 4 answers in a row is the winner.



Key Instant Recall Facts

Year 6 – Spring

I can multiply and divide by multiples of 1,000.

Children have already learnt to recall times tables facts related to multiples of 10 and 100. This learning extends this to thousands.

Examples of this new target include:

$3,000 \times 9$	$5 \times 2,000$	$8,100 \div 9$
$5,000 \times 8$	$12 \times 3,000$	$5,400 \div 6$
$6 \times 7,000$	$6,000 \div 6$	$144,000 \div 12$

Top tips to help with learning:

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

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It is worth revising tables facts regularly to keep them sharp and accurate.

Chain facts:

Make chains of related facts to show how when we know one fact, we can connect these to other facts.

Use a time limit e.g. 2 minutes to find as many related facts for a table fact as possible.

Repeat – Can you beat your score? Can you find as many facts in 1 minute and 30 seconds?

Find the odd facts out:

Give three or more facts e.g. $7 \times 8,000$ 700×8 $56,000 \div 8$ Which is the odd one out and why? Can you replace the incorrect fact with a correct one?

Web links:

[Daily 10 - Mental Maths Challenge - Topmarks](#)

[Multiplication Games for Kids Online - SplashLearn](#)



Key Instant Recall Facts

Year 6 – Spring

I know decimal/fraction equivalents for fifths and eighths.

I know equivalents between simple fractions, decimals and percentages.

$\frac{1}{4}$	0.25	25%		$\frac{1}{3}$	0.333	33.3%		$\frac{2}{10}$	0.2	20% and other tenths to ten tenths.
$\frac{1}{2}$	0.5	50%		$\frac{2}{3}$	0.666	66.6%		$\frac{1}{25}$	0.04	4%
$\frac{3}{4}$	0.75	75%		$\frac{1}{10}$	0.1	10%		$\frac{2}{25}$	0.08	8% and other fractions with 25 as a denominator.

These above facts were all learnt in Year 5 and would be worth revisiting before adding the new facts.

$\frac{1}{5}$	0.2	20%		$\frac{2}{5}$	0.4	40%
$\frac{3}{5}$	0.6	60%		$\frac{4}{5}$	0.8	80%
$\frac{1}{8}$	0.125	12.5%		$\frac{2}{8}$	0.25	25%
$\frac{3}{8}$	0.375	37.5%		$\frac{4}{8}$	0.5	50%
$\frac{5}{8}$	0.675	67.5%		$\frac{6}{8}$	0.75	75%
$\frac{7}{8}$	0.875	87.5%				

Top tips to help with learning:

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Web links:

[Daily 10 - Mental Maths Challenge - Topmarks](#) – level 6 fractions, decimal equivalents.

[Match Fractions Decimals and Percentages - Mathsframe](#)

[Decention Jr | Fractions, Decimals and Percent | Math Playground](#)

[Matching Fractions, Decimals and Percentages \(maths.org\)](#)



Key Instant Recall Facts

Year 6 – Summer

I can multiply and divide by using decimals.

Children will already know their times tables and this is another good opportunity to revise any tricky facts.

Examples of facts to learn include:

5 x 0.4	0.6 x 8	0.09 x 7
3.5 ÷ 7	4.8 ÷ 0.8	0.27 ÷ 9

Top tips to help with learning:

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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.

Related facts:

Choose a tables fact – e.g. $6 \times 9 = 54$. Find as many related facts as you can using multiples of 10, 100 and 1,000 as well as decimals. How many facts can you find in 2 minutes? Can you find more facts the next time you repeat the task?

Odd one out:

Provide three facts, which is the odd one out? Why is this? Can you give another related fact?

E.g. Fact 1: $6 \times 0.8 = 4.8$ Fact 2: $0.8 \times 60 = 48$ Fact 3: $80 \div 6 = 48$

Web links:

[Multiplication Games for Year 6 Kids Online - SplashLearn](#)



Key Instant Recall Facts

Year 6 – Summer

I know the divisibility tests for numbers to 10.

Rules to learn:

Divisible by:	If:	Examples:
2	The ones digit is even (0,2,4,6,8)	128 is 129 is not
3	The sum of the digits is divisible by 3	381 (3+8+1=12, and 12÷3 = 4) Yes 217 (2+1+7=10, and 10÷3 = 3 ¹ / ₃) No
4	The last 2 digits (tens and ones) are divisible by 4	1,312 is (12÷4=3) 7,019 is not
5	The ones digit is 0 or 5	175 is 809 is not
6	The number is divisible by both 2 and 3	114 (it is even, and 1+1+4=6 and 6÷3 = 2) Yes 308 (it is even, but 3+0+8=11 and 11÷3 = 3 ² / ₃) No
8	The last three digits (hundreds, tens and ones) are divisible by 8	109,816 (816÷8=102) Yes 216,302(302÷8=37 ³ / ₄) No
9	The sum of the digits is divisible by 9	1,629 (1+6+2+9=18, and again, 1+8=9) Yes 2,013 (2+0+1+3=6) No
10	The number ends in 0 in the ones.	220 is 221 is not
7	If you double the last digit and subtract it from the rest of the number and the answer is:0, or .divisible by 7 (Note: you can apply this rule to that answer again if you want)	672 (Double 2 is 4, 67-4=63, and 63÷7=9) Yes 905 (Double 5 is 10, 90-10=80, and 80÷7=11 ³ / ₇) No
11	If you sum every second digit and then subtract all other digits and the answer is: 0, or divisible by 11	1,364 ((3+4) - (1+6) = 0) Yes 3,729 ((7+9) - (3+2) = 11) Yes 25,176 ((5+7) - (2+1+6) = 3) No
12	The number is divisible by both 3 and 4	648 (by 3? 6+4+8=18 and 18÷3=6 Yes . by 4? 48÷4=12 Yes) so it is divisible by 12. 524 (by 3? 5+2+4=11 and 11÷3= 3 ² / ₃ No . Don't need to check by 4) so it is not divisible by 12.

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Make it fun:

Use a pack of cards, picture cards count as 0. Each player writes the numbers 1 to 12 on a piece of paper. Turn over 3 cards (this can be any agreed number) and use them to make a number eg: 855. Player 1 can cross out any of their numbers that this 3-digit number is divisible by. eg: 5 and then the next player can cross out a different number that it is divisible by. eg; 3.

Continue until there are no more numbers that the 3-digit number is divisible by and then generate a new number. The winner is the player who crosses out all of their numbers, 1-12, first.

Web links:

<http://www.mathsisfun.com/divisibility-rules.html>

<http://www.basic-mathematics.com/divisibility-rules-game.html> - Time yourself and try to improve

<https://www.ixl.com/math/grade-5/divisibility-rules>

Broaden and apply – enrichment

<http://nrich.maths.org/559>

<http://nrich.maths.org/480>