Key Instant Recall Facts
Year 4 - Autumn 1

I know addition and subtraction facts for bonds to 100.

The list below gives some examples, but they should know all the number bonds for 100.
The aim is for instant recall for each fact in the fact family.

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

100 = 75 + 25
100 = 25 + 75
100 – 25 = 75
100 – 75 = 25

100 = 48 + 52
100 = 52 + 48
100 – 52 = 48
100 – 48 = 52

100 = 37 + 63
100 = 63 + 37
100 – 63 = 37
100 – 37 = 63

100 = 89 + 11
100 = 11 + 89
100 - 89 = 11
100 – 11 = 89

NOTE

A common mistake is to think that because 70 + 30 = 100, 73 + 37 also gives 100. The answer is in fact 110. To make 100, the **tens** add up to **90** and the **ones** add up to **10**, giving the total of 100:

for 37 + 63,

30 + 60 = 90 and 7 + 3 = 10

90 + 10 = 100

Children should be able to answer the questions in any order, including with the calculations written either side of the equals sign and missing number questions,

e.g. 100 – 8 = 92 100 = 8 + 92 92 + ☐ = 100 8 = 100 - ☐

Useful Questions

What do I **add to** 65 **to make** 100?

What is 100 **take away** 6?

What is 13 **less than** 100?

How many more than 98 is 100?

What is **the difference between** 89 and 100?

Top Tips:

The secret to success is to practise little and often -could you practise on the way to school or during a car journey?

You don't need to practise them all at once – perhaps have a fact family of the day. If they can tell you one fact, can they say all the other facts in the family?

Use number bonds to 10 to help - How can number bonds to 10 help you work out number bonds to 100?

Make it fun!

- http://www.conkermaths.org/cmweb.nsf/products/conkerkirfs.html Game 11 – How many can you answer in 90 seconds?
- http://www.topmarks.co.uk/maths-games/hit-the-button Make 100
- http://www.snappymaths.com/addsub/make100/interactive/make100imin/make100imin.htm Make 100
- http://www.wldps.com/gordons/Bingo_-_make_amounts.swf Make 100
- https://www.helpfulgames.com/subjects/mathematics/number-bonds.html Sums to 100
- Timed Games: How well are you doing? How many questions can you answer in 2 minutes? Can you beat your own record?

Deepen and apply

- http://www.wldps.com/gordons/Loop_cards.swf interactive loop cards
- □□ +□□ + □□ = 100 How many ways can you find?
- http://nrich.maths.org/11819 Can you make 100?
- http://nrich.maths.org/1130 Reach 100
- http://nrich.maths.org/2006 Investigate the deca tree

Key Instant Recall Facts

Year 4 – Autumn 2

I know the multiplication and division facts for the 7 times table.

By the end of this term, children should know these facts: the aim is for instant recall.

7 x 0 = 0	0 = 0 x 7	0 ÷ 7 = 0	
7 × 1 = 7	7 = 1 x 7	7÷ 7 = 1	7÷ 1 = 7
7 × 2 = 14	14 = 2 x 7	14 ÷ 7 = 2	14 ÷ 2 = 7
7 × 3 = 21	21 = 3 x 7	21 ÷ 7 = 3	21 ÷ 3 = 7
7 × 4 = 28	28 = 4 x 7	28 ÷ 7 = 4	28 ÷ 4 = 7
7 × 5 = 35	35 = 5 x 7	35 ÷ 7 = 5	35 ÷ 5 = 7
7 × 6 = 42	42 = 6 x 7	42 ÷ 7 = 6	42 ÷ 6 = 7
7 × 7 = 49	49 = 7 x 7	49 ÷ 7 = 7	49 ÷ 7 = 7
7 × 8 = 56	56 = 8 x 7	56 ÷ 7 = 8	56 ÷ 8 = 7
7 × 9 = 63	63 = 9 x 7	63 ÷ 7 = 9	72 ÷ 9 = 7
7 × 10 = 70	70 = 10 x 7	70 ÷ 7 = 10	70 ÷ 10 = 7
7 × 11 = 77	77 = 11 x 7	77 ÷ 7 = 11	77 ÷ 11 = 7
7 × 12 = 84	84 = 12 x 7	84 ÷ 7 = 12	84 ÷ 12 = 7

Children should be able to answer the questions in any order, including with the calculations written either side of the equals sign and missing number questions,

e.g. 7 × ☐ = 21 3 = ☐ ÷ 87

Useful Questions

What is 7 **multiplied by** 6? What are 5 **lots of** 7? What is 7 **times** 8?

What is 35 **divided by** 7? What do you get if you have 7, **three times**?

Top Tips:

The secret to success is to practise little and often - could you practise on the way to school or during a car journey? You don't need to practise them all at once – perhaps have a fact of the day, or a fact family of the day.

Use what you already know: Your child will already know some of the facts from the x2, x3, x4, x5, x6, x8 and x10 tables.

Use fact families: If I know that 3 x 7 = 21, then 7 x 3 = 21, 21 ÷ 3 = 7 and 21 ÷ 7 = 3. If your child becomes confused about the order of the numbers in the division calculation, use pictures or real-life examples to help: 3 netball teams have 7 children in each, so 21 children are needed (7 x 3 = 21). 21 children are in teams of 7, giving 3 teams (21 ÷ 7 = 3)

Make it fun!

- Use practical resources – lay out pebbles, buttons or other objects in arrays (rows and columns) to represent the facts (e.g. 4 x 7 = 28 can be represented by 7 rows of 4).
- Songs and Chants – You can buy Times Tables CDs or find multiplication songs and chants online. If your child creates their own song, this can make the times tables even more memorable.
- http://www.conkermaths.org/cmweb.nsf/products/conkerkirfs.html x7
- http://www.topmarks.co.uk/maths-games/hit-the-button x7
- Play number ping pong! Start by saying 'ping', child replies with 'pong'. Repeat with times tables facts i.e. say '9' and they reply '63'
- 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 (You don't have to join to use it)
- Use memory tricks – For those hard-to-remember facts, www.multiplication.com has some strange picture stories to help children remember.
- http://teach.files.bbci.co.uk/skillswise/ma13tabl-e3-f-7x-table-tips.pdf
- http://www.snappymaths.com/multdiv/7xtable/interactive/newlook/7xtableintd.htm
- http://www.snappymaths.com/multdiv/7xtable/interactive/newlook/7xtablebtcd.htm

Deepen and apply

- http://www.snappymaths.com/multdiv/7xtable/interactive/newlook/7xmissintd.htm
- 7 x 9 = 63. How many different number stories can you write to fit this equation (e.g. I had 8 bags of 9 sweets; how many sweets is that? I had 72 sweets in bags of 8; how many bags did I have?)
- ☐ x 7 = ☐ x 3 + ☐ x 4 How many ways can you make this true?
- ☐ x 7 = ☐ x 7 + 7 How many ways can you make this true? What do you notice?
- ☐ x 7 = ☐ x 7 - 7 How many ways can you make this true? What do you notice?
- Can you notice a pattern with odd and even numbers in the products of the 7x table?
- Captain Conjecture says that multiplying a number by 7 is the same as multiplying it by 2, multiplying it by 5 and adding the products together. Is that always, sometimes or never true? How could you prove it? Can you make any other conjectures and test them?

Key Instant Recall Facts
Year 4 – Spring 1

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

By the end of this term, children should know these facts: the aim is for instant recall.

11 x 0 = 0	0 = 0 x 12	0 ÷ 11 = 0	0 ÷ 12 = 0
11 × 1 = 11	12 = 1 x 12	11÷ 11 = 1	12 ÷ 12 = 1
11 × 2 = 22	24 = 2 x 12	22 ÷ 11 = 2	24 ÷ 12 = 2
11 × 3 = 33	36 = 3 x 12	33 ÷ 11 = 3	36 ÷ 12 = 3
11 × 4 = 44	48 = 4 x 12	44 ÷ 11 = 4	48 ÷ 12 = 4
11 × 5 = 55	60 = 5 x 12	55 ÷ 11 = 5	60 ÷ 12 = 5
11 × 6 = 66	72 = 6 x 12	66 ÷ 11 = 6	72 ÷ 12 = 6
11 × 7 = 77	84 = 7 x 12	77 ÷ 11 = 7	84 ÷ 12 = 7
11 × 8 = 88	96 = 8 x 12	88 ÷ 11 = 8	96 ÷ 12 = 8
11 × 9 = 99	108 = 9 x 12	99 ÷ 11 = 9	108 ÷ 12 = 9
11 × 10 = 110	120 = 10 x 12	110 ÷ 11 = 10	120 ÷ 12 = 10
11 × 11 = 121	132 = 11 x 12	121 ÷ 11 = 11	132 ÷ 12 = 11
11 × 12 = 132	144 = 12 x 12	132 ÷ 11 = 12	144 ÷ 12 = 12

Children should be able to answer the questions in any order, including with the calculations written either side of the equals sign and missing number questions,

e.g. 11 × ☐ = 44 4 = ☐ ÷ 11 7 = ☐ ÷ 12 ☐ = x 12

Useful Questions

What is 12 **multiplied by** 6? What are 5 **lots of** 11? What is 11 **times** 12?

What is 84 **divided by** 12? What do you get if you have 11, **three times**?

Top Tips:

The secret to success is to practise little and often - could you practise on the way to school or during a car journey? You don't need to practise them all at once – perhaps have a fact of the day, or a fact family of the day.

Use what you already know: Your child will already know some of the facts from the x2, x3, x4, x5, x6, x7, x8, x9 and x10 tables.

Use fact families: If I know that 3 x 7 = 21, then 7 x 3 = 21, 21 ÷ 3 = 7 and 21 ÷ 7 = 3. If your child becomes confused about the order of the numbers in the division calculation, use pictures or real-life examples to help: 3 netball teams have 7 children in each, so 21 children are needed (7 x 3 = 21). 21 children are in teams of 7, giving 3 teams (21 ÷ 7 = 3)

Make it fun!

- Use practical resources – lay out pebbles, buttons or other objects in arrays (rows and columns) to represent the facts (e.g. 3 x 12 = 36 can be represented by 12 rows of 3).
- Songs and Chants – You can buy Times Tables CDs or find multiplication songs and chants online. If your child creates their own song, this can make the times tables even more memorable.
- http://www.conkermaths.org/cmweb.nsf/products/conkerkirfs.html
- http://www.topmarks.co.uk/maths-games/hit-the-button
- Play number ping pong! Start by saying 'ping', child replies with 'pong'. Repeat with times tables facts i.e. say '6' and they reply '72'
- Test the Parent – Your child can make up their own tricky division questions for you, e.g. What is 132 divided by 12? 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?
- Use memory tricks – For those hard-to-remember facts, www.multiplication.com has some strange picture stories to help children remember.
- http://www.snappymaths.com/multdiv/11xtable/interactive/newlook/11xtableintd.htm
- http://www.snappymaths.com/multdiv/11xtable/interactive/newlook/11xtablebtcd.htm
- http://www.snappymaths.com/multdiv/12xtable/interactive/newlook/12xtableintd.htm
- http://www.snappymaths.com/multdiv/12xtable/interactive/newlook/12xtablebtcd.htm

Deepen and apply

- http://www.snappymaths.com/multdiv/12xtable/interactive/newlook/12xmissintd.htm
- http://www.snappymaths.com/multdiv/11xtable/interactive/newlook/11xmissintd.htm
- 11 x 12 = 132. How many different number stories can you write to fit this equation?
- ☐ x 12 = ☐ x 6 x 2 How many ways can you make this true?
- Write out the products of the 12x table and the 6x table. What do you notice? Can you explain it?
- Captain Conjecture says that multiplying a number by 12 is the same as multiplying it by 3 and then multiplying the answer by 4. Is that always, sometimes or never true? How could you prove it? Can you make any other conjectures and test them?
- If a number is in the 12 times table, which other times tables must it be in? how do you know?
- What do you notice about the first 9 products of the 11 times table? Can you explain it?
- Is it always, sometimes or never true that adding two multiples of 11 will give a multiple of 11?

Key Instant Recall Facts

Year 4 – Spring 2

I know all the multiplication and division facts up to 12 x 12.

Children should know all of these facts: the aim is for instant recall.

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

Children should be able to answer the questions in any order, including with the calculations written either side of the equals sign and missing number questions,

e.g. 11 × ☐ = 99 6 = ☐ ÷ 8 9 = ☐ ÷ 12 32 = ☐ x 4

Useful Questions

What is 12 **multiplied by** 9?

What are 8 **lots of** 9?

What is 4 **times** 7?

What is 108 **divided by** 12?

What do you get if you have 6, **eight times**?

What is **the product of** 8 and 9?

Top Tips:

The secret to success is to practise little and often - could you practise on the way to school or during a car journey? You don't need to practise them all at once – perhaps have a fact of the day, or a fact family of the day.

Use what you already know: Which facts do you already know that could help you work it out? (Avoid counting up – this is not an efficient strategy)

Use fact families: If I know that 3 x 7 = 21, then 7 x 3 = 21, 21 ÷ 3 = 7 and 21 ÷ 7 = 3.

Focus on the facts you find more difficult to remember and keep repeating them.

Make it fun!

- Use practical resources – lay out pebbles, buttons or other objects in arrays (rows and columns) to represent the facts (e.g. 3 x 12 = 36 can be represented by 12 rows of 3).
- Songs and Chants – You can buy Times Tables CDs or find multiplication songs and chants online. If your child creates their own song, this can make the times tables even more memorable.
- http://www.conkermaths.org/cmweb.nsf/products/conkerkirfs.html
- http://www.topmarks.co.uk/maths-games/hit-the-button
- Play number ping pong! Start by saying 'ping', child replies with 'pong'. Repeat with times tables facts i.e. say '6' and they reply '72'
- Test the Parent – Your child can make up their own tricky division questions for you, e.g. What is 132 divided by 12? 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?
- Use memory tricks – For those hard-to-remember facts, www.multiplication.com has some strange picture stories to help children remember.
- https://www.bbc.co.uk/teach/skillswise/times-tables/z4gs7nb
- http://www.snappymaths.com/multiplication/1to12xtab/interactive/1to12ximm/1to12ximm.htm
- https://www.timestables.co.uk/

Deepen and apply

- Choose a fact family from the times tables. How many different number stories can you write to fit your equation?
- Write out the products of the 3, 6, 9 and 12 times tables – which facts do they have in common? Can you explain why? Can you find any other times tables that have facts in common?
- Choose a times table and write it out. Is there a pattern in the ones digits? Is there a pattern in the tens digits? Does the pattern go on forever? How could you convince me?
- Choose target number. How many different ways can you make that number using multiplication or division (e.g. 12 = 2 x 6, 12 = 3 x 4 12 = 1 x 12, 12 = 24 ÷ 2, 12 = 48 ÷ 4, 12 = 2 x 3 x 2, 12 = 96 ÷ 2 ÷ 2 ÷ 2).
- https://nrich.maths.org/4905
- https://nrich.maths.org/6924

Key Instant Recall Facts
Year 4 – Summer 1

I know fraction and decimal equivalents.

$\frac{1}{2} = \frac{5}{10} = \frac{50}{100} = 0.5$

$\frac{1}{4} = \frac{25}{100} = 0.25$

$\frac{3}{4} = \frac{25}{100} = 0.75$

$\frac{1}{10} = 0.1$ $\frac{2}{10} = 0.2$ $\frac{3}{10} = 0.3$ $\frac{4}{10} = 0.4$ $\frac{5}{10} = 0.5$

$\frac{6}{10} = 0.6$ $\frac{7}{10} = 0.7$ $\frac{8}{10} = 0.8$ $\frac{9}{10} = 0.9$ $\frac{10}{10} = 1$

$\frac{1}{100} = 0.01$ $\frac{5}{100} = 0.05$ $\frac{7}{100} = 0.07$ $\frac{45}{100} = 0.45$ $\frac{33}{100} = 0.33$

$\frac{10}{100} = 0.1$ $\frac{50}{100} = 0.5$ $\frac{70}{100} = 0.7$ $\frac{99}{100} = 0.99$ $\frac{100}{100} = 1$

Children should be able to convert between fractions and decimals for $\frac{1}{2}$, $\frac{1}{4}$, $\frac{3}{4}$, and any number of tenths or hundredths.

Useful Questions

How many **tenths** is 0.8?

How many **hundredths** is 0.8?

How many **hundredths** is 0.12?

How many **tenths** is 0.80?

Top Tips:

The secret to success is to practise little and often - could you practise on the way to school or during a car journey? You don't need to practise them all at once – perhaps have a fact of the day, or a fact of the day.

A common mistake with hundredths is to think that $\frac{5}{100}$ is the same as 0.5 but this is incorrect. 0.5 is equivalent to $\frac{5}{10}$ which is equivalent to $\frac{50}{100}$. This can be seen on a place value chart, as shown below. 0.5 and 0.50 have exactly the same value.

ONES	decimal point	tenths	hundredths	Fraction equivalent
0	•	5		$\frac{5}{10}$
0	•	0	5	$\frac{5}{100}$
0	•	5	0	$\frac{50}{100} = \frac{5}{10}$

Make it fun!

- Count up and down in tenths and hundredths, counting out loud
- 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.
- http://www.snappymaths.com/counting/decimals/interactive/w10th100thdec/w10th100thdec.htm Writing tenths and hundredths as decimals
- http://nrich.maths.org/1249 Matching fractions and decimals
- http://www.sheppardsoftware.com/mathgames/fractions/FractionsToDecimals.htm

Deepen and apply

- http://www.snappymaths.com/counting/fractions/interactive/tenthsandhundredths/tenthsandhundredths.htm
- http://www.snappymaths.com/counting/fractions/interactive/hundredths/hundredths.htm Can you write it as a decimal and a fraction?
- http://www.snappymaths.com/counting/fractions/interactive/tenthsint/tenthsint.htm Can you write it as a decimal and a fraction?
- Write a decimal number (to one decimal place) which lies between a half and three quarters? How many more can you find?
- Write a fraction with a denominator of one hundred which has a value of more than 0.75? … and another, … and another, …
- Is it always, sometimes or never true that if the numerator is half the denominator then the fraction is equivalent to 0.5? Explain your answer.

Key Instant Recall Facts

Year 4 – Summer 2

I know the effect of multiplying or dividing a one-digit or two-digit number by 10 or 100. Children should be able to **quickly** work out facts like the ones below.

7 × 10 = 70	56 x 10 = 560	7 × 100 = 700	56 x 100 = 5600
10 x 7 = 70	10 x 56 = 560	100 x 7 = 700	100 x 56 = 5600
70 ÷ 7 = 10	560 ÷ 10 = 56	700 ÷ 100 = 7	5600 ÷ 100 = 56
70 ÷ 10 = 7	560 ÷ 56 = 10	700 ÷ 7 = 100	5600 ÷ 56 = 100
7 ÷ 10 = 0.7	56 ÷ 10 = 5.6	7 ÷ 100 = 0.07	56 ÷ 100 = 0.56
70 x 10 = 700	28 x 10 = 280	70 x 100 = 7000	28 x 100 = 2800
10 x 70 = 700	10 x 28 = 280	100 x 70 = 7000	100 x 28 = 2800
700 ÷ 10 = 70	280 ÷ 10 = 28	7000 ÷ 100 = 70	2800 ÷ 100 = 28
700 ÷ 70 = 10	280 ÷ 28 = 10	7000 ÷ 70 = 100	2800 ÷ 28 = 100
	28 ÷ 10 = 2.8	70 ÷ 100 = 0. 7	28 ÷ 100 = 0.28

These are just a few examples. Children should be able to answer questions in any order, including missing number questions

e.g. 1□ = 5 □ ÷ 10 = 60 13□100 =

Useful Questions

What is 5 **multiplied by** 10? What is 10 **times** 0.9?

What is 700 **divided by** 70?

How many tenths will you get if you divide 14 by ten?

Top Tips:

The secret to success is to practise little and often - could you practise on the way to school or during a car journey? You don't need to practise them all at once – perhaps have a fact of the day, or a fact of the day.

Keep referring to the key language of tenths and hundredths.

Make it fun!

- http://www.snappymaths.com/counting/decimals/interactive/div1dby10100/div1dby101000.htm divide by 10 or 100
- http://www.snappymaths.com/counting/decimals/resources/div1dby10.pdf dividing 1 digit by 10 worksheet
- http://www.snappymaths.com/counting/decimals/resources/div1dby100.pdf dividing 1 digit by 100 worksheet.
- http://resources.hwb.wales.gov.uk/VTC/phase4_20030829/Mathematics/Keystage2/Numbers/Tenthsandhundre/Introduction/whiteboard2.htm
- Play number ping pong! Start by saying 'ping', child replies with 'pong'. Repeat with numbers i.e. say '9' and they reply '0.9' (for divide by 10)
- Timed Games: How well are you doing? How many questions can you answer in 2 minutes? Can you beat your own record?

Deepen and apply

- I divide a number by 100 and the answer is 0.3. What number did I start with?
- Write down a number with one decimal place which when multiplied by 10 gives an answer between 120 and 130 and another, … and another, …
- Is it always, sometimes or never true that multiplying a number by 10 makes it bigger? Explain your answer.
- http://www.topmarks.co.uk/Flash.aspx?f=BingoMultiplicationv9 Try applying it to tables questions
- http://www.topmarks.co.uk/Flash.aspx?f=inversemachinev3 Investigate the different inverse relationships
- Try learning your 0.7 times table or your 70 times table, using what you already know.