Year 5 – Autumn 1

I know decimal number bonds to 1 and 10.

By the end of this half term, children should know decimal addition and subtraction facts for 1 and 10. The aim is for them to recall these facts instantly.

Some examples:

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

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

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?

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 + ◯ = 10 or 7.2 + ◯ = 10.

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.

Buy one get three free - If your child knows one fact (e.g. 2.8 + 7.2 = 10), can they tell you the other three facts in the same fact family?

Key Instant Recall Facts

Year 5 – Autumn 1

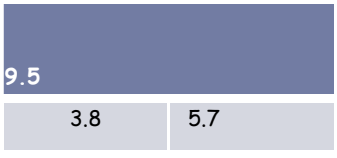
Make it fun!

- Timed Games: How well are you doing? How many questions can you answer in 2 minutes. Can you beat your own record?
- http://www.conkermaths.org/cmweb.nsf/products/conkerkirfs.html Game 5 – How many can you answer in 90 seconds?
- http://www.topmarks.co.uk/maths-games/hit-the-button Select decimals make 1 or make 10
- http://www.snappymaths.com/addsub/make1/resources/make1tenthsmmmab.pdf Worksheet for bonds to make 1
- http://www.wldps.com/gordons/Bingo_-_make_amounts.swf Choose make 1 (1d.p) or make 10 (1 d.p)
- Play dominoes. Pick a domino. Choose one side to be the whole number and the other side to be the tenth. Ask how many more to make 10.
- http://www.learn-with-math-games.com/learning-decimals.html Pairing decimals game to print

Broaden and apply

http://www.wldps.com/gordons/Loop_cards.swf Select pairs to 1 (1d.p) or pairs to 10 (1d.p)

□ □+ □ □ + □ □ = 10 How many ways can you find to make this true?



Write four number facts that this bar diagram shows.

Use this number sentence to write down three more pairs of decimal numbers that total 3:

1·6 + 1·4 = 3

Year 5 – Autumn 2

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
1	1	2	3	4	5	6	7
2	2	4	6	8	10	12	14
3	3	6	9	12	15	18	21
4	4	8	12	16	20	24	28
5	5	10	15	20	25	30	35
6	6	12	18	24	30	36	42
7	7	14	21	28	35	42	49
8	8	16	24	32	40	48	56
9	9	18	27	36	45	54	63
10	10	20	30	40	50	60	70
11	11	22	23	44	55	66	77
12	12	24	36	48	60	72	84

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 5 – Autumn 2

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/1134 Multiplication square investigation

http://nrich.maths.org/5714 Investigate which numbers are represented by the shapes in these times tables

http://nrich.maths.org/6924 Which tables made these patterns?

Is it always, sometimes or never true that when you multiply a whole number by 9, the sum of its digits is also a multiple of 9 ? Explain your answer.

72 = □ x □ Which pairs of numbers could be written in the boxes?

Year 5 – Spring 1

I know the tests for divisibility for 2,3,4,5,6,8,9 and 10.
Children should be able to use these rules to test if one number is divisible by another.

Divisible by:	If:	Examples:
2	The last digit is even (0,2,4,6,8)	12**8** is 12**9** 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 are divisible by 4	13**12** is (12÷4=3) 70**19** is not
5	The last digit is 0 or 5	17**5** is 80**9** 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 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 (Note: you can apply this rule to that answer again if you want)	1629 (1+6+2+9=18, and again, 1+8=9) **Yes** 2013 (2+0+1+3=6) **No**
10	The number ends in 0	22**0** is 22**1** is not

Key Vocabulary

Divisible by or evenly divided by – both mean that one number can be divided by another and the answer is a whole number

Key Instant Recall Facts

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.

Year 5 – Spring 1

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 first.
- http://www.conkermaths.org/cmweb.nsf/products/conkerkirfs.html
  Divisibility rules for 4 and 6
- 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 Divisors investigation

Divisible by:	If:	Examples:

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
8	The last three digits are divisible by 8	109816 (816÷8=102) Yes 216302 (302÷8=37 $^{3}/_{4}$) No
11	If you sum every second digit and then subtract all other digits and the answer is: 0, or divisible by 11	1364 ((3+4) - (1+6) = 0) Yes 3729 ((7+9) - (3+2) = 11) Yes 25176 ((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) Yes 524 (*By 3?* 5+2+4=11 and 11÷3= 3 $^{2}/_{3}$ No. Don't need to check by 4.) No

Year 5 – Spring 2

I can find factor pairs of a number.

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 × 6

24 = 8 × 3 56 = 7 × 8 54 = 9 × 6

42 = 6 × 7

25 = 5 × 5

84 = 7 × 12

15 = 5 × 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.

Key Instant Recall Facts

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.

Year 5 – Spring 2

Make it fun!

- 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.
- http://www.conkermaths.org/cmweb.nsf/products/conkerkirfs.html Choose factors game
- http://www.snappymaths.com/multdiv/multfact/interactive/factorsint/factorsint.htm
- http://www.hoodamath.com/games/factorfeeder.html
- http://www.smarttutor.com/wpcontent/uploads/games/Space_rocks.swf
- http://www.math-play.com/Factors-Millionaire/Factors-Millionaire.html
- Timed Games: How well are you doing? How many questions can you answer in 2 minutes. Can you beat your own record?

Broaden and apply

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

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

http://nrich.maths.org/84 Sweets in a box investigation

A number has exactly eight factors, two of which are 21 and 35. What is the number?

http://nrich.maths.org/1011 Abundant Numbers investigation

http://nrich.maths.org/7468 Factor track investigation

Year 5 – Summer 1

I can round any number up to 1,000,000 to the nearest 10, 100, 1000, 10,000 and 100,000 and can round decimals with two decimal places to the nearest whole number and to one decimal place.

By the end of this half term, children should be able to round the following facts and other similar facts.

Round to nearest 10

675-> 680

6583 -> 6580

541,987 -> 541,990

Round to nearest 100

450 -> 500

3487 -> 3500

897,987 -> 898,000

Round to nearest 1000

6754 -> 7000

987,576 -> 988,000

2,909,601 -> 2,910,000

Round to nearest 10,000

67,944 -> 70,000

439,488 -> 440,000

6,654,349 -> 6,650,000

Round to nearest 100,000

456,998 -> 500,000

242,657 -> 200,000

3,958,993 ->4,000,000

Round to nearest whole

5.8 -> 6

54.67 -> 55

659.98 -> 660

Round to one decimal place

45.92 -> 45.9

123.843 -> 123.8

67.964 -> 68

Key Vocabulary

What is 789 rounded to the nearest 10?

What is 15,786 rounded to the nearest 100?

What is 987,451 rounded to the nearest thousand?

What is 4,505,652 rounded to the nearest ten thousand?

What is 2,945,789 rounded to the nearest hundred thousand?

What is 671.48 rounded to the nearest whole number?

Key Instant Recall Facts

What is 981.78 rounded to one decimal place?

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.

Year 5 – Summer 1

Make it fun!

- Look for patterns – Talk to your child about what happens when rounding with digits with 0 to 4 or 5 to 9 in the significant column.
- https://www.mathsisfun.com/rounding-numbers.html gives examples and explanations with some questions
- http://www.topmarks.co.uk/Flash.aspx?f=DartboardRoundingv2
- https://uk.ixl.com/math/year-6/rounding also gives explanation when questions are answered incorrectly

Broaden and apply

A number rounded to the nearest thousand is 76000 What is the largest possible number it could be?

Round 343997 to the nearest 1000. Round it to the nearest 10000. What do you notice? Can you suggest other numbers like this?

Two numbers each with two decimal places round to 23.1 to one decimal place. The total of the numbers is 46.2. What could the numbers be? What do you notice?

Give an example of a six digit number which rounds to the same number when rounded to the nearest 10000 and 100000

Year 5 – Summer 2

I can multiply and divide whole numbers and those involving decimals by 10, 100 and 1000.

By the end of this half term, children should be able to work out the following facts and other similar facts.

5 × 10 = 50	7 × 100 = 700	4 x 1000 = 4000
80 ÷ 10 = 8	900 ÷ 100 = 9	2000 ÷ 1000 = 2
23 × 10 = 230	84 × 100 = 8400	72 x 1000 = 72,000
97 ÷ 10 = 9.7	72 ÷ 100 = 0.72	8540 ÷ 1000 = 8.54
217 × 10 = 2170	589 × 100 = 58,900	423 x 1000 = 423,000
456 ÷ 10 = 45.6	312 ÷ 100 = 3.12 2.8	601 ÷ 1000 = 0.601
6.4 × 10 = 64	× 100 = 280	8.7 x 1000 = 8700
7.8 ÷ 10 = 0.78	697 ÷ 100 = 6.97	5328 ÷ 1000 = 5.238
2.85 × 10 = 28.5	4.76 × 100 = 476	6.75 x 1000 = 6750
67.1 ÷ 10 = 6.71	189 ÷ 100 = 1.89	1924 ÷ 1000 = 1.924

Key Vocabulary

What is 5 multiplied by 10?

What is 100 times 0.9? What is 723 divided by 1000?

hundreds, tens, ones, tenths, hundredths, thousandths

These are just examples of the facts for this term. Children should be able to answer these questions in any order, including missing number questions e.g. 100 × ◯ = 5 or ◯ ÷ 1000 = 0.645.

Top Tips

It is important to refer to the digits, rather than the decimal point, moving when multiplying or dividing by 10 or 100. Using the following place value chart: http://www.taw.org.uk/lic/itp/mov_digits.html to help children see how the decimal point remains fixed and the digits shift left if multiplying and right if dividing.

Key Instant Recall Facts

Year 5 – Summer 2

Make it fun!

- http://www.snappymaths.com/counting/decimals/interactive/div1dby10100/div1dby101000.htm
- http://www.iboard.co.uk/iwb/Place-Value-Shifter-1373 A useful tool to show the effect of multiplying or dividing by 10 and 100
- http://kids.britannica.com/lm/games/GM_5_5/GM_5_5.htm
- http://mathsframe.co.uk/en/resources/resource/31/multiply_and_divide_by_10_100_and_1000_2_
- 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?

Broaden and apply

I divide a number by 1000 and the answer is 0.3. What number did I start with?

Write down a number with one decimal place which when divided by 100 gives an answer between 12.5 and 13 … and another, … and another, …

Is it always, sometimes or never true that multiplying a number by 10 and then multiplying the answer by 100 is the same as multiplying the original number by 1000? 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