Year 6 Key instant recall facts (KIRFs)
## Autumn 1

Know all previous number bonds including decimals.

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:

3 + 7 = 10	99 + 1 = 100	100 − 1 = 99
30 + 70 = 100	0.99 + 0.01 = 1	100 - 0.01 = 0.99
300 + 700 = 1000	990 + 10 = 100	1000 - 10 = 990
0.3 + 0.7 = 1		
0.03 + 0.07 = 0.1	64 + 36 = 100	100 - 36 = 64
	6.4 + 3.6 = 10	10 - 3.6 = 6.4
1 − 0.7 = 0.3	0.64 + 0.36 = 1	1 − 0.36 = 0.64
0.1 − 0.07 = 0.03	640 +360 = 1000	1000 - 360 = 640
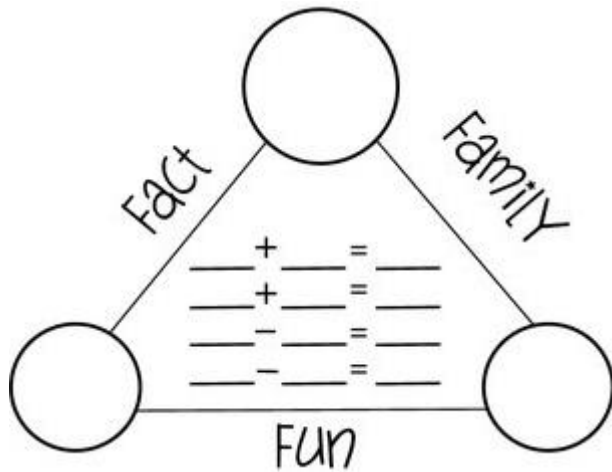
Fact Family Fun

Key vocabulary

What is 0.3 added to 0.7?

What is 0.64 more than 0.36?

What is 360 less than 1000?

What is the difference between 1000 and 990?

What is 100 subtract 0.99?

Use practical resources

- Play the fact family game. If I know 10 − 7 is 3 then what other facts do I know?
- https://www.topmarks.co.uk/Search.aspx?q=number%20bond%20games
- https://www.fun2think.com/maths/number-bond-games/

Top tips:
The key to success is little and often. Use time wisely. Can you practise KIRFs while walking to school or during a car journey? You do not need to practise them all at once; perhaps you could have a fact of the day. If you would like any more ideas, please speak to your child's teacher.

Derive multiplication and division facts using decimal numbers (e.g. 8 x 0.7 =

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:

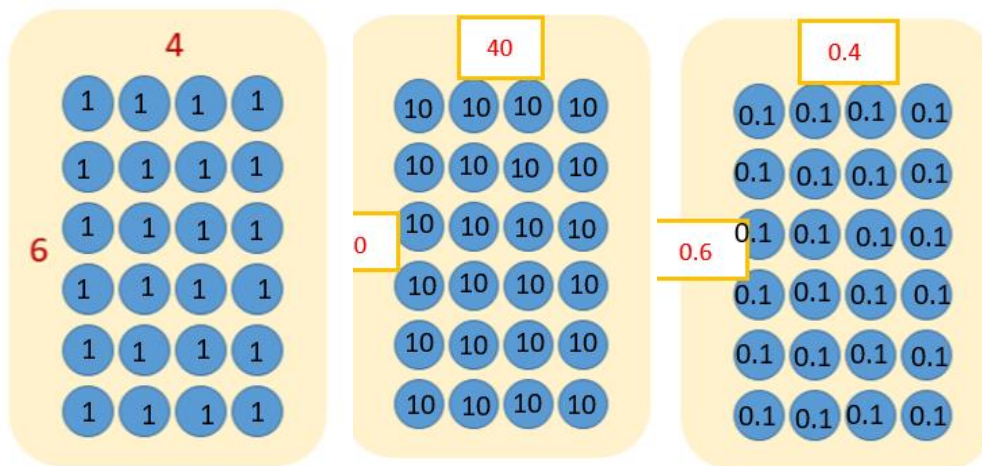| If I know	Then I know	Key vocabulary
7 x 8 = 56	70 x 80 = 5600 7 x 80 = 560 70 x 8 = 560 0.7 x 0.8 = 5.6 5600 ÷ 70 = 80 5600 ÷ 80 = 70 5.6 ÷ 0.7 = 0.8 5.6 ÷ 0.8 = 0.7	If I know 3 x 4 is 12 then what is 30 x 40? If 7 x 9 is 63 then what is 0.7 x 0.9? If I know 99 divided by 9 is 11 then what is 990 divided by 9?

Use practical resources

- Make fact family posters starting with the multiplication fact and then covering the page in as many related facts as possible.

- Play what 2as the original fact – say I know 70x 80 = 5600 what was my original fact,

- Top marks maths fact activities

Top tips:
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Year 6 Key instant recall facts (KIRFs)
Spring 1

> Know doubles and halves of 2-digit decimals.

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.

Half		Double
0.6	1.2	2.4
1.25	2.5	5
1.8	3.6	7.2
2.35	4.7	9.4
2.75	5.5	11
3.4	6.8	13.6
3.65	7.3	14.6
4.45	8.9	17.8
4.55	9.1	18.2

Use practical resources –

- Children may find it easier to partition the number for instance half of 7.3 - half of 7 is 3.5 and half of 0.3 is 0.15 so 3.65.
- Play top marks hit the button game and other online maths games.

Key vocabulary

Double
Half
Multiply by 2
Divide by 2

It is worth noting that some decimal are more challenging to divide by 2 than others. If the digits are even then it is easier than if they are odd. The children may need reminding of the following key facts:

$0.1 \div 2 = 0.05$ $10 \div 2 = 5$

$0.3 \div 2 = 0.15$ $30 \div 2 = 15$
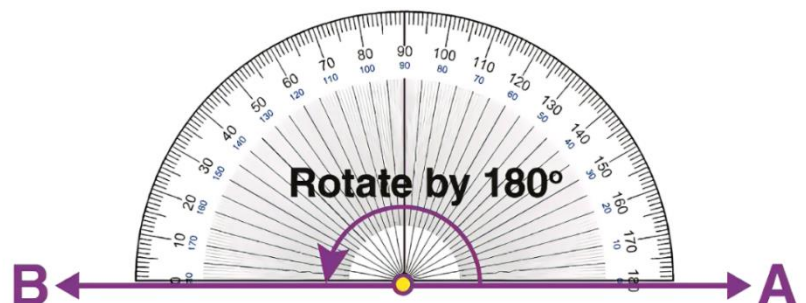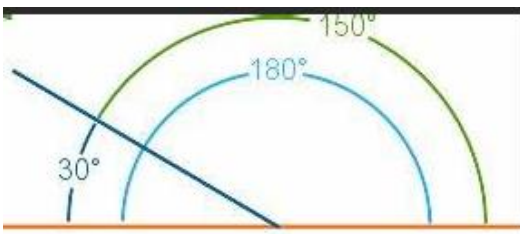
$0.5 \div 2 = 0.25$ $50 \div 2 = 25$

$0.7 \div 2 = 0.35$ $70 \div 2 = 35$

$0.9 \div 2 = 0.45$ $90 \div 2 = 45$

> Know angles on a straight line = 180°

Rotate by 180°

Top tips:
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Year 6 Key instant recall facts (KIRFs)
Spring 2

Know square numbers to 12 x 12

By the end of this half term, children should know the following facts. The aim is for them to recall these facts instantly.

$1^2 = 1 \times 1 = 1$

$2^2 = 2 \times 2 = 4$

$3^2 = 3 \times 3 = 9$

$4^2 = 4 \times 4 = 16$

$5^2 = 5 \times 5 = 25$

$6^2 = 6 \times 6 = 36$

$7^2 = 7 \times 7 = 49$

$8^2 = 8 \times 8 = 64$

$9^2 = 9 \times 9 = 81$

$10^2 = 10 \times 10 = 100$

$11^2 = 11 \times 11 = 121$

$12^2 = 12 \times 12 = 144$

$\sqrt{1} = 1$

$\sqrt{4} = 2$

$\sqrt{9} = 3$

$\sqrt{16} = 4$

$\sqrt{25} = 5$

$\sqrt{36} = 6$

$\sqrt{49} = 7$

$\sqrt{64} = 8$

$\sqrt{81} = 9$

$\sqrt{100} = 10$

$\sqrt{121} = 11$

$\sqrt{144} = 12$

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.

$1^2 = 1$

$2^2 = 4$

$3^2 = 9$

$4^2 = 16$

$5^2 = 25$

$6^2 = 36$

Use practical resources –

- 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.

Top tips:
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Year 6 Key instant recall facts (KIRFs)
Summer 1

Know the tests for divisibility for numbers up to 10

By the end of this half term, children should know the following facts. The aim is for them to recall these facts instantly.

Divisibility rules in numerical order	
2	*'A number is divisible by two if the ones digit is even.'*
3	*'For a number to be divisible by three, the sum of the digits of the number must be divisible by three.'*
4	*'If halving a number gives an even value, then the number divisible by four.'* and *'For numbers with more than two digits: if the final two digits are divisible by four then the number is divisible by four.'*
5	*'A number is divisible by five if the ones digit is five or zero.'*
6	*'For a number to be divisible by six, the number must be divisible by both two and three.'*
8	*'If halving a number twice gives an even value, the number is divisible by eight.'*
9	*'For a number to be divisible by nine, the sum of the digits of the number must be divisible by nine.'*
10	*'A number is divisible by ten if the ones digit is zero.'*

Key vocabulary

Is 345 divisble by 5?

How do you know 891 is divisible by 9?

Is 366 divisble by 6, 3 or 2?

Is 2360 a multiple of 10?

If 444 can be halved and halved again what is it divisible by? Is it divisible by anything else?

Use practical resources-

• Randomly generate a 2,3,4 digit number by rolling a dice. Test the rules of divisibility to see what it is divisible by.

• Play give me a 3 digit multiple of 9 – can you child generate a number following the rules of divisibility.

Know parts of a circle – radius, diameter etc.
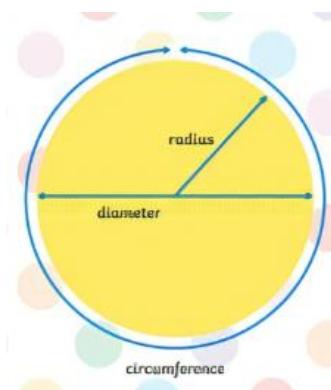
2 x the radius =diameter

Half the diameter = the radius

Top tips:
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