



KEY INSTANT RECALL FACTS

To develop your child's fluency and mental maths skills, we have decided to introduce KIRFs (Key Instant Recall Facts) throughout school.

KIRFS are a way of helping your child to learn by heart, key facts and information which they need to have instant recall of. KIRFs are a crucial part of a child's learning journey. They underpin a learner's mental development and ensure that they're able to answer maths questions with confidence.

They are particularly useful when calculating: adding; subtracting; multiplying or dividing. They contain number facts such as number bonds and times tables that need constant practice and rehearsal, so children can recall them quickly and accurately. Instant recall of facts helps enormously with mental agility within maths lessons. When children move onto written calculations, knowing these key facts is very beneficial.

For your child to become more efficient in recalling them easily, they need to be practised frequently and for short periods of time. Each half term, children will focus on a Key Instant Recall Fact (KIRF) to practise and learn at home for the half term. They will also be available on our school website under the maths section. The KIRFs include practical ideas to assist your child in grasping the key facts and contain helpful suggestions of ways in which you could make this learning interesting and relevant.

They are not designed to be a time-consuming task and can be practiced anywhere – in the car, walking to school, etc. Regular practice - little and often – helps children to retain these facts and keep their skills sharp. **Throughout the half term, the KIRFs will also be practiced in school and your child's teacher will assess whether they have been retained.**

Over their time at primary school, we believe that - if the KIRFs are developed fully - children will be more confident with number work, understand its relevance, and be able to access the curriculum much more easily.

They will be able to apply what they have learned to a wide range of problems that confront us regularly.



Key Instant Recall Facts

Year 6 – Autumn 1

I know the multiplication and division facts for all times tables up 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**.

All multiplication and division facts are expected to be known by the end of year 4 and this is a chance for Year 6 children to consolidate their knowledge of multiplication and division facts and to increase their speed of recall.

See separate sheet for all times tables facts.

Key Vocabulary

What is 8 multiplied by 6?

What is 7 times 4?

What is 81 divided by 9?

What is the product of 5 and 7?

They should be able to answer these questions in any order, including missing number questions e.g. $6 \times \bigcirc = 42$ or $\bigcirc \div 8 = 4$

Children who have already mastered their times tables should apply this knowledge to answer questions including decimals e.g. $0.7 \times \bigcirc = 4.2$ or $\bigcirc \div 60 = 0.7$

Top Tips

The secret to success is practising little and often. Can you practise these KIRFs while walking to school or during a car journey? If you would like more ideas, please speak to your child's teacher.

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 and Queen = 12). How many questions can they answer correctly in 2 minutes? Practise regularly and see if they can beat their highest score.

Use memory tricks – For those hard-to-remember facts, www.multiplication.com has some picture stories to help children remember.



Key Instant Recall Facts

Year 6 – Autumn 2

I can identify common factors of a pair of numbers, common multiples and prime numbers

By the end of this half term, children should know how to identify common factors, multiples and prime numbers.

Factors

The factors of a number are all numbers which divide into it with no remainder.

E.g. the factors of 24 are 1, 2, 3, 4, 6, 8, 12 and 24

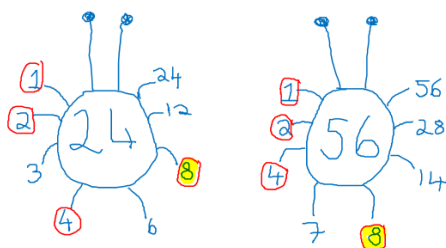
The factors of 56 are 1, 2, 4, 7, 8, 14, 28 and 56.

The **common factors** of two numbers are the factors they share.

E.g. the common factors of 24 and 56 are 1, 2, 4 and 8

The highest common factor of 24 and 56 is **8**.

Using factor bugs can help children see the common factors and the highest common factor.



Multiples

To find common multiples, children should list the multiples in a given range and look for the highest number both lists have.

Show the highest common multiple of 4 and 6, less than 30.

4	6
4	6
8	12
12	18
16	24
20	30
24	
28	

Prime numbers

Prime numbers have only two factors, 1 and their number. There is only one **even** prime number which is 2. All the rest are **odd**. The first two prime numbers are 2 and 3, the rest can be identified using multiples of 6, they sit either before or after the multiple.

Multiples of 6		
5	6	7
11	12	13
17	18	19
23	24	25
29	30	31
35	36	37
41	42	43
47	48	49

Top Tips

Ask your child to identify prime numbers within a certain range – how do they know they are prime?

Key Vocabulary

Factor
 Common factor
 Multiple
 Highest common factor/multiple
 Prime number



Key Instant Recall Facts

Year 6 – Spring 1

I can find a percentage of an amount

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

Percent means out of 100. To find percentages:

Amount needed	Divide the total amount by	Reason
50%	2	There are 2 lots of 50% in 100%
25%	4	There are 4 lots of 25% in 100%
75%	4 then multiply by 3	Find 25% by dividing by 4 and then multiply the 25% by 3 for 75%
20%	5	There are 5 lots of 20% in 100% Or divide by 10 to find 10% and then double the 10%
10%	10	There are 10 lots of 10% in 100%
5%	10 then divide by 2	Find 10% by dividing by 10 then half the 10% to find 5%
1%	100	There are 100 lots of 1% in 100%

Children will look at various **strategies** to find percentages of amounts.

For instance, to find 65%:

- (i) they can find 50%, 10% and 5% and add the amounts together
- (ii) they could find 10% and multiply it by 6 to find 60%, then find 5% and add it to the 60%.
- (iii) they could find 1% of the total amount and then multiply the 1% by 65.

Using bar models can help:

100%									
50%					50%				
25%		25%			25%		25%		
10%		10%		10%		10%		10%	
5%	5%	5%	5%	5%	5%	5%	5%	5%	5%

Top tips

Ask your child to find a percentage of an amount and see how many strategies they have for finding the amount.



Key Instant Recall Facts

Year 6 – Spring 2

I can convert between common decimals, fractions and percentages.

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

FRACTION	DECIMAL	PERCENT
1/4	0.25	25%
4/5	0.8	80%
7/10	0.7	70%
3/10	0.3	30%
9/10	0.9	90%
6/25	0.24	24%
3/5	0.6	60%
1/5	0.2	20%
7/50	0.14	14%
1/8	0.125	12.5%
79/100	0.79	79%
43/50	0.86	86%
9/25	0.36	36%
3/4	0.75	75%
9/20	0.45	45%
3/8	0.375	37.5%
2/3	0.66	66%

Key Vocabulary

Write 0.75 as a fraction and a percentage.

Write $\frac{1}{4}$ as a decimal and a percentage.

What is $\frac{3}{4}$ as a percentage and a decimal?

Play games – Make some cards with equivalent fractions, decimals and percentages. Use these to play the memory game or snap.

Top Tips

Remind your child that decimals are only tenths, hundredths, thousandths (and so on). In order **to convert a fraction to a decimal** they may need to convert the denominator to a tenth/hundredth/thousandth which can then easily be placed on a place value grid. $2/5 = 4/10 = 0.4$

To convert a decimal to a percentage they can either multiply the decimal by 100 or convert the decimal to a fraction with a denominator of 100 (percentages are out of 100). $0.6 \times 100 = 60\%$ or $0.6 = 6/10 = 60/100 = 60\%$



Key Instant Recall Facts

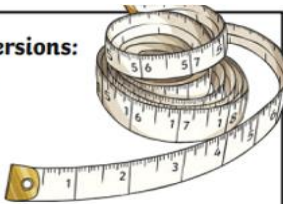
Year 6 – Summer 1

I can convert between measures.

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


Length Conversions:

1km = 1000m
1m = 100cm
1cm = 10mm



Mass Conversions:

1kg = 1000g



Volume Conversions:

1l = 1000ml



a. 5.389km = m
b. 7.12km = m
c. 6.03m = cm
d. 9.3cm = mm
e. 1700m = km
f. 689cm = m
g. 70cm = m
h. 44mm = cm

a. 3.37kg = g
b. 7.412kg = g
c. 6.26kg = g
d. 1.1kg = g
e. 1450g = kg
f. 3700g = kg
g. 9410g = kg
h. 33g = kg

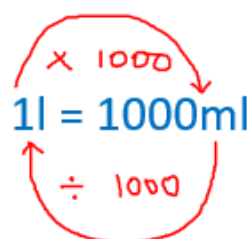
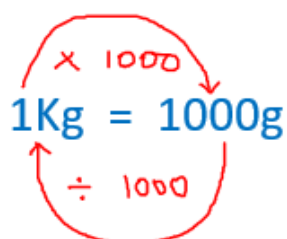
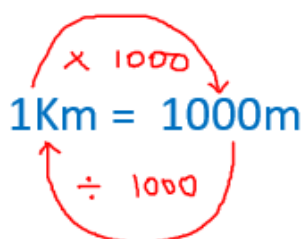
a. 6.5l = ml
b. 5.24l = ml
c. 1.455l = ml
d. 8.9l = ml
e. 3100ml = l
f. 400ml = l
g. 1975ml = l
h. 1120ml = l

Top Tips

kilograms (kg) kilometres (km) litres (l)	to	grams (g) metres (m) millilitres (mm)	MULTIPLY by 1000
grams (g) metres (m) millilitres (mm)	to	kilograms (kg) kilometres (km) litres (l)	DIVIDE by 1000

Key Vocabulary

Kilogram/ grams
Kilometre/metres
Litre/millilitres




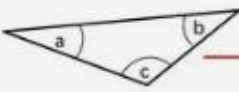

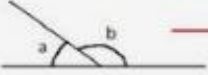

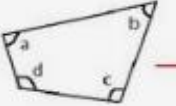





Key Instant Recall Facts

Year 6 – Summer 2

I can recall key facts in geometry.

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

Angle Types	Angle Rules																											
 Acute angle $< 90^\circ$	 Angles in a triangle add up to 180° So $a + b + c = 180^\circ$																											
 Right angle $= 90^\circ$	 Angles on a straight line add up to 180° So $a + b = 180^\circ$																											
 Obtuse angle $> 90^\circ$ and $< 180^\circ$	 Angles in a quadrilateral add up to 360° . So $a + b + c + d = 360^\circ$																											
 Straight line $= 180^\circ$	 Angles around a point add up to 360° . So $a + b + c + d + e = 360^\circ$																											
 Reflex angle $> 180^\circ$	<p style="text-align: center;">Angles in regular shapes</p> <table border="1"> <thead> <tr> <th>Name of shape</th> <th>Sides</th> <th>Interior angles</th> </tr> </thead> <tbody> <tr> <td>equilateral triangle</td> <td>3</td> <td>60°</td> </tr> <tr> <td>square</td> <td>4</td> <td>90°</td> </tr> <tr> <td>regular pentagon</td> <td>5</td> <td>108°</td> </tr> <tr> <td>regular hexagon</td> <td>6</td> <td>120°</td> </tr> <tr> <td>regular heptagon</td> <td>7</td> <td>128.6°</td> </tr> <tr> <td>regular octagon</td> <td>8</td> <td>135°</td> </tr> <tr> <td>regular nonagon</td> <td>9</td> <td>140°</td> </tr> <tr> <td>regular decagon</td> <td>10</td> <td>144°</td> </tr> </tbody> </table> <p style="text-align: center;">Interior angles of regular n-sided polygons add up to $180(n-2)^\circ$</p>	Name of shape	Sides	Interior angles	equilateral triangle	3	60°	square	4	90°	regular pentagon	5	108°	regular hexagon	6	120°	regular heptagon	7	128.6°	regular octagon	8	135°	regular nonagon	9	140°	regular decagon	10	144°
Name of shape	Sides	Interior angles																										
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Key Vocabulary

Isosceles
 Equilateral
 Quadrilateral
 Regular
 Irregular
 Corresponding
 Alternate

Top Tips:

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

Ask your child regularly:

Angles in a triangle add up to?

Angles in a quadrilateral add up to?


Angles in a pentagon add up to?

If one of the angles in an isosceles triangle is 50 degrees, what could the other two be?

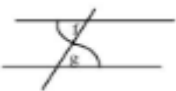
What are the properties of a scalene triangle?

What do angles around a point add up to?

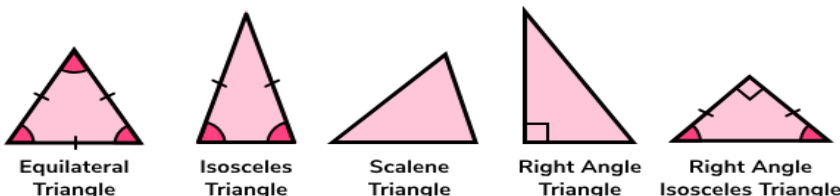
Ask your child to name all the shapes they can think of and



When 2 lines are parallel to each other, the angles shown are said to be **corresponding** and are equal to each other. They are always on the same side.



When 2 lines are parallel to each other, the angles shown are said to be **alternate** to each other and they are equal.



Equilateral Triangle

Isosceles Triangle

Scalene Triangle

Right Angle Triangle

Right Angle Isosceles Triangle