Key Instant Recall Facts (KIRFs)

What are KIRFs?

Our KIRFs have been designed to support the development of the core declarative knowledge that underpins much of the maths work in schools. Each objective has been carefully selected based on the National curriculum. Key instant recall facts help enormously with mental agility within Maths lessons and when children move onto written calculations, knowing these facts is very beneficial. These facts are particularly useful when calculating, be it adding, subtracting, multiplying or dividing.

The rote learning of certain numeracy facts, such as times tables, has always been a crucial part of maths development. However, alongside the times tables there are many other key number facts that are needed to make complex reasoning and problem solving much more accessible.

Each half term children will be given a different KIRF objective to practise and learn in school and at home. They will be given the opportunity to recall these at the start of every maths lesson. For your children to become more efficient in recalling them easily, they need to be practiced frequently and for short periods of time. **Little and often is key!**

Over the course of primary school - 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 learnt to a wide range of problems that confront us regularly.

Why practise the KIRFs?

Working memory plays an essential role in children's mathematical learning (De Smedt et al., 2009) but it is a system with limited capacity. When a mathematical task requires processing, or actively maintaining, too much information in the working memory, it can lead to cognitive overload.

The repetition needed to learn the KIRFs by heart should allow children to store this knowledge into their long-term memories, helping them to free up their working memories more in their lessons. If a child knows their key facts by heart, they can focus on learning new steps or procedures, and then develop their reasoning and problem-solving skills. Once these facts are committed to long term memory it becomes a matter of retrieval.

How to practise KIRFS:

This KIRFs handbook includes practical ideas to assist your child in grasping the key facts and contains helpful suggestions of ways in which you could make this learning interesting and relevant. KIRFs are not designed to be a time-consuming task and can be practised 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 practised in school and your child's teacher will assess whether they have been retained. However, please note that the practise of KIRFs should be viewed as a tool for retrieval, not a formal assessment.

You do not need to practise them all at once; perhaps you could have a fact of the day. If you would like more ideas, please speak to your child's teacher.

Year 4

https://ttrockstars.com/

Objective: I can find out what must be added to any 2-digit number to make 100.

- Buy one get three free – If your child knows one fact (e.g. 85 + 15 = 100), can they tell you the other three facts in the same fact family? 15 + 85 = 100, 100-15=85 and 100-85=15.
- Use number bonds to 10 – How can your number bonds to 10 help you work out number bonds to 100?
- Play Games – There are missing number questions at www.conkermaths.org. See how many questions you can answer in 90 seconds. There is also a number bond pair game to play.

Objective: I know the multiplication and division facts for the 3-, 6- and 9-times tables

- Songs and Chants – You can buy Times Tables CDs or find multiplication songs and chants online.
- You can also use Education City songs and websites www.timestables.co.uk and www.timestables.me.uk
- Double your threes – Multiplying a number by 6 is the same as multiplying by 3 then doubling the answer. 7 x 3 = 21 and double 21 is 42, so 7 x 6 = 42
- Buy one get three free – If your child knows one fact (e.g. 3 x 6 = 18), can they tell you the other three facts in the same fact family? 6x3=18, 18/3=6 and 18/6=3.
- WARNING! – When creating fact families, children sometimes get confused by the order of the numbers in the division number sentence. It is tempting to say that the biggest number goes first, but it is more helpful to say that the answer to the multiplication goes first, as this will help your child more in later years when they study fractions, decimals and algebra. E.g. 6 x 12 = 72. The answer to the multiplication is 72, so 72 ÷ 6 = 12 and 72 ÷ 12 = 6

Objective: I know the multiplication and division facts for the 7and 11 times tables

- Songs and Chants – You can buy Times Tables CDs or find multiplication songs and chants online.
- You can also use Education City songs and websites www.timestables.co.uk and www.timestables.me.uk
- Use memory tricks – For those hard-to-remember facts, www.multiplication.com has some strange picture stories to help children remember.
- WARNING! – When creating fact families, children sometimes get confused by the order of the numbers in the division number sentence. It is tempting to say that the biggest number goes first, but it is more helpful to say that the answer to the multiplication goes first, as this will help your child more in later years when they study fractions, decimals and algebra. E.g. 7 x 11 = 77. The answer to the multiplication is 77, so 77 ÷ 11 = 7 and 77 ÷ 7 = 11

Objective: I know the multiplication and division facts for the 11- and 12-times table.

- Look for patterns – These times tables are full of patterns for your child to find. How many can they spot? Use your ten times table – Multiply a number by 10 and add the original number (e.g. 7 x 10 + 7 = 70 + 7 = 77) What do you notice?
- What do you already know? – Your child will already know many of these facts from the 2, 3, 4, 5, 6, 8 and 10 times tables. It may be worth practising these again!

Objective: I can recognise decimal equivalents of fractions.

- 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.

Objective: I can multiply and divide single-digit numbers by 10 and 100

- It is tempting to tell children that to multiply by ten or one hundred it is just a case of adding zeroes to the end of a number. This way of thinking, however, can cause problems when they are trying to multiply and divide decimal numbers as the rule does not work for these numbers.
- The best way to understand the process for multiplying by ten or one hundred is to show each digit moving in the place value table (place value shift). This rule also works for decimals. Buy one get three free – If your child knows one fact (e.g. 12 x 4 = 48), can they tell you the other three facts in the same fact family?

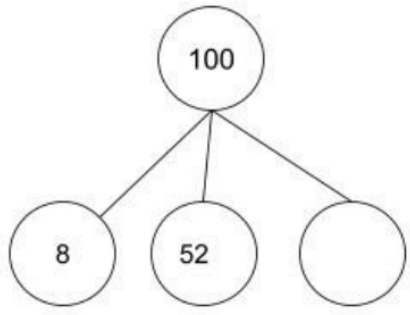
YEAR 4

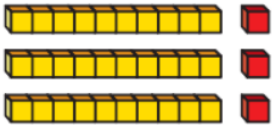
	Aut 1	Aut 2	Spr 1	Spr 2	Sum 1	Sum 2
Year 4	I can find out what must be added to any 2-digit number to make 100.	I know the multiplication and division facts for the 3,6 and 9 times tables	I know the multiplication and division facts for the 7 and 11 times tables.	I know the multiplication and division facts for the 11 and 12 times table.	I can recognise decimal equivalents of fractions.	I can multiply and divide single-digit numbers by 10 and 100.

52 + ___ = 100

100	
	52

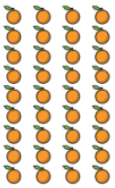
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
9			9			9			9			9			9		





3 × 11 = 33

- There are _____ rows of 4 oranges.
  There are _____ oranges in total.
  _____ × _____ = _____
- The oranges are shared into 9 boxes.
  There are _____ oranges in each box.
  _____ ÷ _____ = _____



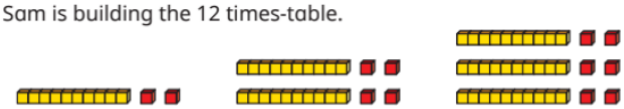
Here are Annie's workings for 9 × 7

9 × 7 = 10 × 7 – 7
= 70 – 7
= 63

Use Annie's method to complete the number sentences.

- 9 × 3 = 10 × ___ – ___
- 9 × 8 = 10 × ___ – ___
- 9 × 6 = 10 × ___ – ___
- 9 × 9 = 10 × ___ – ___

Sam is building the 12 times-table.



1 × 12 = 12 2 × 12 = 24 3 × 12 = 36

Use base 10 to help you complete the multiplications.

- 12 × 5 = ___
- 5 × 12 = ___
- 48 ÷ 12 = ___
- 84 ÷ 12 = ___
- 12 × ___ = 120
- 12 × ___ = 132
- ___ ÷ 12 = 8
- ___ = 9 × 12