Key Instant Recall Facts

KIRFs

To develop your child's fluency and mental maths skills, we are introducing KIRFs 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 designed to support the development of mental maths skills that underpin much of the maths work in our school. 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 practise and rehearsal, so children can recall them quickly and accurately.

Instant recall of facts helps enormously with mental agility in maths lessons. When children move onto written calculations, knowing these key facts is very beneficial and if these facts can be recalled mentally, it frees up the working memory for them to unpick and solve more complex reasoning and problem solving questions. For your child to become more efficient in recalling facts easily, they need to be practised frequently and for short periods of time.

Each half term, children will focus on 1 or 2 Key Instant Recall Facts (KIRFs) to practise and learn at home for the half term. They will also be available on our school website under the maths section and will be sent to parents and carers alongside the curriculum newsletter each term. The KIRFs include links to online games, videos and resources that you may find useful when practising these KIRFs with your child at home. They 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.

Maths is a journey not a destination

Consolidate multiplication and division facts for all times tables.

By the end of this half term, children should be confidently able to answer any times table fact for any table up to 12 x 12. They should also be able to use this knowledge to apply to related division facts e.g. 36 ÷ ____ = 4

Possible Methods. - Songs and chants, there are many times table songs online. Such as KS2 Maths: Multiples Mash-up March with Mr P - BBC Teach

Spot patterns – Look at the pattern that 6 times table is double of 3 times table. 12 times table is the 10 times table with a double added on etc.

Test the Parent – Your child can make up their own division questions for you e.g. What is 42 divided by 6? They need to be able to multiply to create these questions

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 do not need to practise them all at once; perhaps you could have a fact of the day. Play 'ping pong'. You say a times table fact, the child says answer back to you with a speedy recall!

- *Online games*

- *TT Rockstars—children have individual log ins.*

- Coconut Multiples - Reinforce Times Tables (topmarks.co.uk)

- Hit the Button - Quick fire maths practise for 6-11 year olds (topmarks.co.uk) KS1 Maths - England - BBC Bitesize

White Rose Maths—One Minute Maths App

Find factor pairs of a number

Know prime numbers within 100.

By the end of this half term, children should be able to find the factor pairs of a given number. For example the factor pairs of 36 would be 1 and 36. 2 and 18, 3 and 12, 4 and 9, 6 and 6.
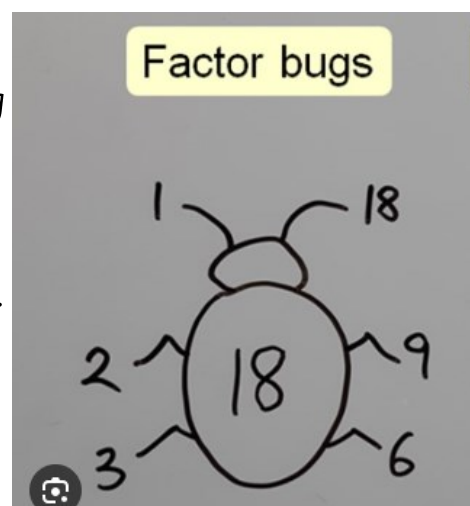
Children should also be able to name prime numbers within 100, some numbers may be more difficult to remember but they should definitely be able to recognise when a number would not be prime, e.g. even numbers (other than 2) and numbers ending in a 5.

Possible Methods.

Encourage children to be logical in their approach starting with 1 and ... does 2 go into the number? What about 3, 4 etc. Once you reach a number you have previously got in your list, you know you have found all possible factors. Drawing factor bugs can help recognise that the factors come in pairs.

With prime numbers, children often find larger numbers difficult to decide if it is prime or not. One tip is to try dividing by 3 as larger number divisible by 3 are often missed and mistakenly thought of as prime, for example many children think 87 and 51 are prime but they are not because they are divisible by 3.

Parent explanation can be found here. What Is A Prime Number? Explained for Parents, Teachers & Children (thirdspacelearning.com)

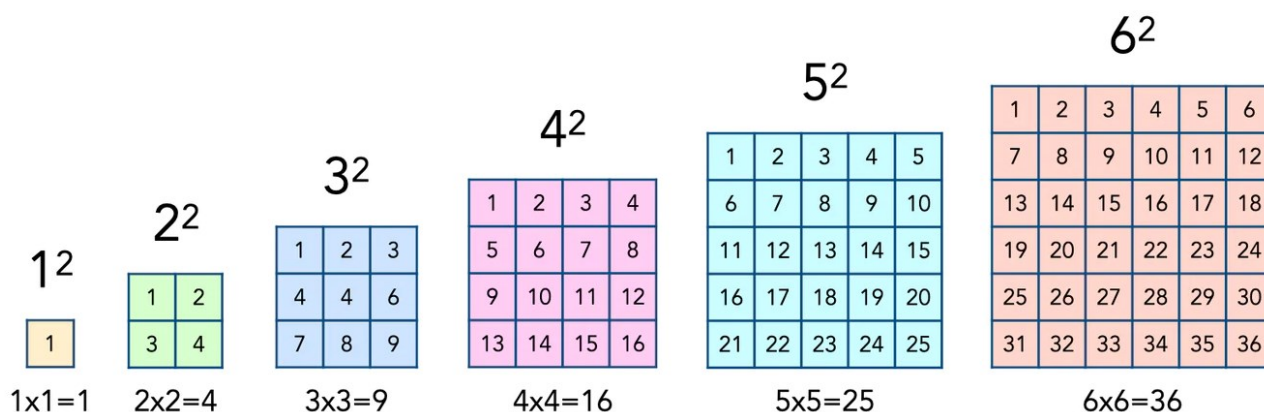|	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Recall all square numbers up to 12 and their related square roots.

By the end of this half term, children should know what it means to square a number (multiply it by itself) and recognise the square notation as 3^2.

$1 \times 1 = 1$ $2 \times 2 = 4$ $3 \times 3 = 9$ $4 \times 4 = 16$ $5 \times 5 = 25$ $6 \times 6 = 36$

$7 \times 7 = 49$ $8 \times 8 = 64$ $9 \times 9 = 81$ $10 \times 10 = 100$ $11 \times 11 = 121$

$12 \times 12 = 144$ Our square numbers are: **1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144**

Possible Methods.

Introduce the concept of square numbers by creating squares with either squared paper or cubes. This helps the children understand what the concept of a square number is. Links should be made with times tables, the children will find square numbers much easier if they are secure with their times tables.

- **Online games**

Square Numbers - Match up (wordwall.net)

Square Numbers! - Whack-a-mole (wordwall.net)

Moorlands Primary School

Know simple equivalent fractions
Know the decimal equivalents of the fractions ½, ¼, ¾, tenths and fifths

By the end of this half term, children should be able to mentally recall simple equivalent fractions that involve doubling or halving the numerators and denominators such as 1/2 = 5/10, 4/8 etc. 6/8= 3/4   2/12 = 4/24 etc.

They should also be able to mentally recall these decimal equivalents

1/2 = 0.5   1/4= 0.25   3/4 = 0.75   1/10 = 0.1   2/10 = 0.2   3/10 = 0.3 etc

1/5 = 0.2   2/5 = 0.4   3/5 = 0.6   4/5 = 0.8
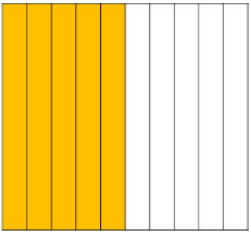
Possible Methods.

Children need lots of exposure to the correct language of the first decimal place being tenths of a number and the second decimal place being hundredths. They should recognise that fractions are parts of a whole, The whole can be split into ten parts (tenths) or hundred parts (hundredths) one half is equivalent to 5 tenths or 0.5

Equivalent decimals of halves and quarters - Maths - Learning with BBC Bitesize - BBC Bitesize

Equivalent fractions and decimals - Maths - Learning with BBC Bitesize - BBC Bitesize

www.Teacher-of-Primary.co.uk

½ as a Decimal

Colour half of the grid.
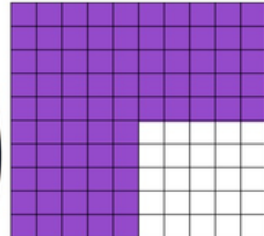How many tenths have been coloured?

$$\frac{5}{10} = \frac{1}{2}$$

$\frac{5}{10}$ as a decimal = | ones | tenths |
|---|---|
| 0 | 5 | $= \frac{1}{2}$

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¾ as a Decimal

Colour three quarters of the grid.
How many hundredths have been coloured?

$$\frac{75}{100} = \frac{3}{4}$$

$\frac{75}{100}$ as a decimal = | ones | tenths | hundredths |
|---|---|---|
| 0 | 7 | 5 | $= \frac{3}{4}$

Know all decimals that total 1 or 10 (1 decimal place).

By the end of this half term, children should be able to use their knowledge of number bonds to 10 and bonds to 100 and apply this to find pairs of decimals that total 1 or 10.

E.g. 0.3 + 0.7 = 1   4.6 + 5.4 = 10 They should also be able to answer missing number questions e.g. 0.2 + ? = 1   ? + 3.7 = 10.

Method - Make sure links are made with bonds to 10 when finding pairs of decimals that total 1. Use correct vocabulary of tenths e.g. 0.4 is 4 tenths, rather than the language of zero point four. The children learn that ten tenths is a whole one. Ten tenths equals a whole.

When totalling 10 using pairs of decimals, links can be made with number bonds to 100 e.g. 62 + 38 = 100 therefore 6.2 + 3.8 = 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 do not need to practise them all at once; perhaps you could have a fact of the day. Play 'ping pong'. You say a decimal number, your child says the number back to you that is needed to total 1 or 10.

Key Vocabulary

What do I **add** to 0.8 to make 1?

What is 1 **take away** 0.6?

What is 1.3 **less than** 10?

How many more than 9.8 is 10?

What is the **difference** between 8.9 and 10?

Online Resources

Decimal Number Bonds (thenational.academy)

Hit the Button - Quick fire maths practise for 6-11 year olds (topmarks.co.uk)   (select the decimal option in number bonds)

I Can Recall Decimal Number Bonds To 10. | Interactive Game | Lesson ID 147 | Studyzone.tv

Know all decimal number bonds to 1 and 10.

By the end of this half term, children should be able to use their knowledge of basic number bonds to 10 from and apply this to know all decimal number bonds to 1 and 10. Including missing numbers. For example:

$0.1 + 0.9 = 1$ $0.2 + 0.8 = 1$ $0.3 + 0.7 = 1$ $0.4 + 0.6 = 1$ $0.5 + 0.5 = 1$

$1.1 + 8.9 = 10$ $2..6 + 7.4 = 10$ $6.8 + 3.2 = 10$ $5.2 + 4.8 = 10$

$2,5 + \_\_ = 10$ $0.7 + \_\_\_ = 10$ $\_\_\_ + 4.3 = 10$ $\_\_\_\_ + 3.7 = 10$

Method - Ensure children add on the tenths to bridge to the next whole number before adding the remaining ones. A common misconception is that children use bonds to 10 with the whole numbers plus the tenths e.g. thinking that $3.2 + 7. 8 = 10$ because they see that $3 + 7 = 10$. In fact they should take $3.2 + 0.8$ to make 4 then recognise they need to add a further 6 to make 10. $3.2 + 6. 8 = 10$. Watch this video for a good demonstration

Lesson: Decimal Number Bonds | Teacher Hub | Oak National Academy (thenational.academy)

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 do not need to practise them all at once; perhaps you could have a fact of the day. Play 'ping pong'. Adult says a number, child says number back that is needed to equal 1 or 10.

Play games

- Play 'Guess my number' giving clues e.g. I'm thinking of a number, when I add 0.3 to it my answer is 1. What was my number?

- Play bonds to 1 or 10 with decimal numbers bingo. Create a grid on paper, add decimal numbers to each box. Bingo caller calls out decimal number, if you have a number on your board that adds to the callers number to equal 1 or 10 then cross it out. First to complete their grid is the winner!

- **Online games**   Hit the Button - Quick fire maths practise for 6-11 year olds (topmarks.co.uk) (select number bonds then decimals)

Recall metric conversions

By the end of this half term, children should be able to convert between metric units of mass, length and capacity. They should know how many mm are in a cm, how many cm in a metre, grams in a kilogram, ml in a litre etc. They should link this with their place value knowledge of multiplying and dividing by 10, 100 and 1000.

Concrete:

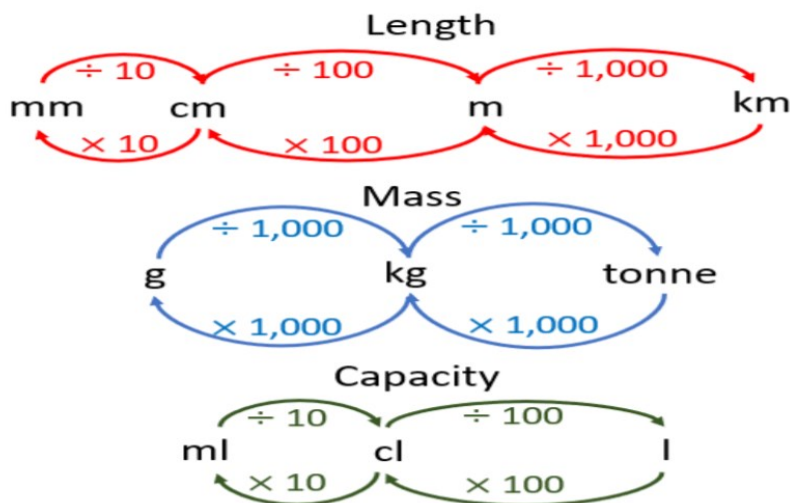| Thousands	Hundreds	Tens	Ones	Tenths	Hundredths
			●●	●●	●●

How many mm are in 3.24cm?

How many cm are in 3.24m?

Pictorial:

Thousands	Hundreds	Tens	Ones	Tenths	Hundredths
			3 .	2	4
		3	2 .	4	
	3	2	4		

Abstract method. -

Length

÷ 10   ÷ 100   ÷ 1,000

mm   cm   m   km

× 10   × 100   × 1,000

Mass

÷ 1,000   ÷ 1,000

g   kg   tonne

× 1,000   × 1,000

Capacity

÷ 10   ÷ 100

ml   cl   l

× 10   × 100

Converting metric units - Maths - Learning with BBC Bitesize - BBC Bitesize

Things to try

- Measure the length, mass and volume of different items in your home. Show the measurements in different units of measures.

- Help out in the kitchen to follow a recipe. Can you convert the units of measure?