



## Mathematics @ Dinnington

# KIRFs

## Key Instant Recall Facts

### *Year 3*

To help develop children's fluency in Mathematics, we have identified some Key Instant Recall Facts that should be learnt off by heart each half term.

Children will practice these facts in class, but would benefit from regular practice at home 3 times a week as well. At the end of each half term they will be assessed on how well they achieve each fact.

Please see attached lists of KIRFs which are aligned to the Maths curriculum we deliver.

### **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. If you would like more ideas, please speak to your child's teacher.*

## Year 3 Block 1 KIRFs

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

**I know all my facts for each number up to 20.**

+	0	1	2	3	4	5	6	7	8	9	10
0	0+0	0+1	0+2	0+3	0+4	0+5	0+6	0+7	0+8	0+9	0+10
1	1+0	1+1	1+2	1+3	1+4	1+5	1+6	1+7	1+8	1+9	1+10
2	2+0	2+1	2+2	2+3	2+4	2+5	2+6	2+7	2+8	2+9	2+10
3	3+0	3+1	3+2	3+3	3+4	3+5	3+6	3+7	3+8	3+9	3+10
4	4+0	4+1	4+2	4+3	4+4	4+5	4+6	4+7	4+8	4+9	4+10
5	5+0	5+1	5+2	5+3	5+4	5+5	5+6	5+7	5+8	5+9	5+10
6	6+0	6+1	6+2	6+3	6+4	6+5	6+6	6+7	6+8	6+9	6+10
7	7+0	7+1	7+2	7+3	7+4	7+5	7+6	7+7	7+8	7+9	7+10
8	8+0	8+1	8+2	8+3	8+4	8+5	8+6	8+7	8+8	8+9	8+10
9	9+0	9+1	9+2	9+3	9+4	9+5	9+6	9+7	9+8	9+9	9+10
10	10+0	10+1	10+2	10+3	10+4	10+5	10+6	10+7	10+8	10+9	10+10

They should also be able to work out missing number/symbol problems involving this.

For example  $\_\_\_ + 1 = 9$        $4 + \_\_\_ = 13$

Children also need to know the inverse of these e.g

$4 + 9 = 13$  so  $13 - 9 = 4$  or  $13 - 4 = 9$

### Possible Learning Activities

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

Games- Use sumdog addition facts to practise at [www.sumdog.com](http://www.sumdog.com)

Flash Cards- Hold up flash cards with the facts on them.

Matching pairs- Find all the pairs that make a given number



## Year 3 Block 2 KIRFs

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

### Number bonds to 100

Some examples:

$60 + 40 = 100$

$40 + 60 = 100$

$100 - 40 = 60$

$100 - 60 = 40$

$75 + 25 = 100$

$25 + 75 = 100$

$100 - 25 = 75$

$100 - 75 = 25$

$37 + 63 = 100$

$63 + 37 = 100$

$100 - 63 = 37$

$100 - 37 = 63$

$48 + 52 = 100$

$52 + 48 = 100$

$100 - 52 = 48$

$100 - 48 = 52$

#### Key Vocabulary

What do I **add** to 65 to make 100?

What is 100 **take away** 6?

What is 13 **less than** 100?

**How many more** than 98 is 100?

What is the **difference** between 89 and 100?

This list includes some examples of facts that children should know. They should be able to answer questions including missing number questions e.g.  $49 + \bigcirc = 100$  or  $100 - \bigcirc = 72$ .

### Possible Learning Activities

Buy one get three free - If your child knows one fact (e.g.  $8 + 5 = 13$ ), can they tell you the other three facts in the same fact family?

Use number bonds to 10 - How can number bonds to 10 help you work out number bonds to 100?

Play games – There are missing number questions at [www.conkermaths.com](http://www.conkermaths.com). See how many questions you can answer in just 90 seconds. There is also a number bond pair game to play

## Year 3 Block 3 KIRFs

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

### Multiplication and division facts for the 3 times table

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

$3 \times 1 = 3$	$1 \times 3 = 3$	$3 + 3 = 1$	$3 + 1 = 3$
$3 \times 2 = 6$	$2 \times 3 = 6$	$6 + 3 = 2$	$6 + 2 = 3$
$3 \times 3 = 9$	$3 \times 3 = 9$	$9 + 3 = 3$	$9 + 3 = 3$
$3 \times 4 = 12$	$4 \times 3 = 12$	$12 + 3 = 4$	$12 + 4 = 3$
$3 \times 5 = 15$	$5 \times 3 = 15$	$15 + 3 = 5$	$15 + 5 = 3$
$3 \times 6 = 18$	$6 \times 3 = 18$	$18 + 3 = 6$	$18 + 6 = 3$
$3 \times 7 = 21$	$7 \times 3 = 21$	$21 + 3 = 7$	$21 + 7 = 3$
$3 \times 8 = 24$	$8 \times 3 = 24$	$24 + 3 = 8$	$24 + 8 = 3$
$3 \times 9 = 27$	$9 \times 3 = 27$	$27 + 3 = 9$	$27 + 9 = 3$
$3 \times 10 = 30$	$10 \times 3 = 30$	$30 + 3 = 10$	$30 + 10 = 3$
$3 \times 11 = 33$	$11 \times 3 = 33$	$33 + 3 = 11$	$33 + 11 = 3$
$3 \times 12 = 36$	$12 \times 3 = 36$	$36 + 3 = 12$	$36 + 12 = 3$

#### Key Vocabulary

What is 3 **multiplied by** 8?

What is 8 **times** 3?

What is 24 **divided by** 3?

They should be able to answer these questions in any order, including missing number questions e.g.  $3 \times \bigcirc = 18$  or  $\bigcirc \div 3 = 11$ .

### Possible Learning Activities

#### Play TTRS

Songs and Chants – You can buy Times Tables CDs or find multiplication songs and chants online. If your child creates their own song, this can make the times tables even more memorable.

Buy one get three free – If your child knows one fact (e.g.  $3 \times 5 = 15$ ), can they tell you the other three facts in the same fact family? 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.  $3 \times 12 = 36$ . The answer to the multiplication is 36, so  $36 \div 3 = 12$  and  $36 \div 12 = 3$

Games Use sumdog tables practise at [www.sumdog.com](http://www.sumdog.com)

## Year 3 Block 4 KIRFs

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

### Multiplication and division facts for the 4 times table

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

$4 \times 1 = 4$	$1 \times 4 = 4$	$4 \div 4 = 1$	$4 \div 1 = 4$
$4 \times 2 = 8$	$2 \times 4 = 8$	$8 \div 4 = 2$	$8 \div 2 = 4$
$4 \times 3 = 12$	$3 \times 4 = 12$	$12 \div 4 = 3$	$12 \div 3 = 4$
$4 \times 4 = 16$	$4 \times 4 = 16$	$16 \div 4 = 4$	$16 \div 4 = 4$
$4 \times 5 = 20$	$5 \times 4 = 20$	$20 \div 4 = 5$	$20 \div 5 = 4$
$4 \times 6 = 24$	$6 \times 4 = 24$	$24 \div 4 = 6$	$24 \div 6 = 4$
$4 \times 7 = 28$	$7 \times 4 = 28$	$28 \div 4 = 7$	$28 \div 7 = 4$
$4 \times 8 = 32$	$8 \times 4 = 32$	$32 \div 4 = 8$	$32 \div 8 = 4$
$4 \times 9 = 36$	$9 \times 4 = 36$	$36 \div 4 = 9$	$36 \div 9 = 4$
$4 \times 10 = 40$	$10 \times 4 = 40$	$40 \div 4 = 10$	$40 \div 10 = 4$
$4 \times 11 = 44$	$11 \times 4 = 44$	$44 \div 4 = 11$	$44 \div 11 = 4$
$4 \times 12 = 48$	$12 \times 4 = 48$	$48 \div 4 = 12$	$48 \div 12 = 4$

#### Key Vocabulary

What is 4 **multiplied by** 6?

What is 8 **times** 4?

What is 24 **divided by** 4?

They should be able to answer these questions in any order, including missing number questions e.g.  $4 \times \bigcirc = 16$  or  $\bigcirc \div 4 = 7$ .

### Possible Learning Activities

#### Play TTRS

Songs and Chants – You can buy Times Tables CDs or find multiplication songs and chants online. If your child creates their own song, this can make the times tables even more memorable.

What do you already know? – Your child will already know many of these facts from the 2, 3, 5 and 10 times tables.

Double and double again – Multiplying a number by 4 is the same as doubling and doubling again. Double 6 is 12 and double 12 is 24, so  $6 \times 4 = 24$ .

Buy one get three free – If your child knows one fact (e.g.  $4 \times 5 = 20$ ), can they tell you the other three facts in the same fact family? 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.  $4 \times 12 = 48$ . The answer to the multiplication is 48, so  $48 \div 4 = 12$  and  $48 \div 12 = 4$

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## Year 3 Block 5 KIRFs

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

### Multiples of 50 and 100

Children need to be able to count in 50s

$1 \times 50 = 50$

$50 \div 50 = 1$

$2 \times 50 = 100$

$100 \div 50 = 2$

$3 \times 50 = 150$

$150 \div 50 = 3$

$4 \times 50 = 200$

$200 \div 50 = 4$

$5 \times 50 = 250$

$250 \div 50 = 5$

$6 \times 50 = 300$

$300 \div 50 = 6$

$7 \times 50 = 350$

$350 \div 50 = 7$

$8 \times 50 = 400$

$400 \div 50 = 8$

$9 \times 50 = 450$

$450 \div 50 = 9$

$10 \times 50 = 500$

$500 \div 50 = 10$

#### Key Vocabulary

How many 50s make 300?

Multiply 50 by 6?

What are 4 lots of 50?

They should be able to answer these questions in any order, including missing number questions e.g.  $50 \times \bigcirc = 150$  or  $\bigcirc \div 50 = 7$ .

They should also be able to count in 50s in sequences e.g.  
150, 200, \_\_\_\_, \_\_\_\_, 350

Children need to be able to count in 100s up to 10000 eg

$1 \times 100 = 100$

$2 \times 100 = 200$

$3 \times 100 = 300$

$4 \times 100 = 400$

$5 \times 100 = 500$

They should be able to count in 100s in sequences e.g.

100, \_\_\_\_, 300, \_\_\_\_, 500, \_\_\_\_, 700

### Possible Learning Activities

- Say the next 3 numbers – children continue a sequence started by an adult
- Odd one out / spot the mistake – children identify the error or odd one out as an adult counts
- Sequencing – print off the numbers can pupils put them in the correct order
- Snap – match multiplication facts with division facts using the same family of numbers eg  $3 \times 50 = 150$  goes with  $150$  divided by  $3 = 50$



## Year 3 Block 6 KIRFs

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

### Multiplication and division facts for the 8 times table

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

$8 \times 1 = 8$	$1 \times 8 = 8$	$8 \div 8 = 1$	$8 \div 1 = 8$
$8 \times 2 = 16$	$2 \times 8 = 16$	$16 \div 8 = 2$	$16 \div 2 = 8$
$8 \times 3 = 24$	$3 \times 8 = 24$	$24 \div 8 = 3$	$24 \div 3 = 8$
$8 \times 4 = 32$	$4 \times 8 = 32$	$32 \div 8 = 4$	$32 \div 4 = 8$
$8 \times 5 = 40$	$5 \times 8 = 40$	$40 \div 8 = 5$	$40 \div 5 = 8$
$8 \times 6 = 48$	$6 \times 8 = 48$	$48 \div 8 = 6$	$48 \div 6 = 8$
$8 \times 7 = 56$	$7 \times 8 = 56$	$56 \div 8 = 7$	$56 \div 7 = 8$
$8 \times 8 = 64$	$8 \times 8 = 64$	$64 \div 8 = 8$	$64 \div 8 = 8$
$8 \times 9 = 72$	$9 \times 8 = 72$	$72 \div 8 = 9$	$72 \div 9 = 8$
$8 \times 10 = 80$	$10 \times 8 = 80$	$80 \div 8 = 10$	$80 \div 10 = 8$
$8 \times 11 = 88$	$11 \times 8 = 88$	$88 \div 8 = 11$	$88 \div 11 = 8$
$8 \times 12 = 96$	$12 \times 8 = 96$	$96 \div 8 = 12$	$96 \div 12 = 8$

#### Key Vocabulary

What is 8 **multiplied by** 6?

What is 8 **times** 8?

What is 24 **divided by** 8?

They should be able to answer these questions in any order, including missing number questions e.g.  $8 \times \bigcirc = 16$  or  $\bigcirc \div 8 = 7$ .

### Possible Learning Activities

#### Play TTRS

Songs and Chants – You can buy Times Tables CDs or find multiplication songs and chants online. If your child creates their own song, this can make the times tables even more memorable.

Double your fours – Multiplying a number by 8 is the same as multiply by 4 and then doubling the answer.  $8 \times 4 = 32$  and double 32 is 64, so  $8 \times 8 = 64$ .

Five six seven eight – fifty-six is seven times eight ( $56 = 7 \times 8$ ).

Buy one get three free – If your child knows one fact (e.g.  $8 \times 5 = 40$ ), can they tell you the other three facts in the same fact family? 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.  $8 \times 12 = 96$ . The answer to the multiplication is 96, so  $96 \div 8 = 12$  and  $96 \div 12 = 8$

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