

Key mental
calculation
strategies in numeracy



FOSSE MEAD
PRIMARY ACADEMY

Learn-Its

Learn-Its are core number facts that are crucial to being able to complete calculations quickly and effectively. To successfully learn the Learn-Its children should practise them in class at a manageable rate ensuring they also practise the switchers and fact families.

Switchers- these are the inverse, if you know $3 \times 4 = 12$ then you also know that $12 \div 4 = 3$

Switchers link into Fact Families where children learn a series of connected number sentences.

$$7 + 8 = 15$$

$$8 + 7 = 15$$

$$15 - 7 = 8$$

$$15 - 8 = 7$$

The 36 Addition 'Learn Its'

+	2	3	4	5	6	7	8	9
2	4							
3	5	6						
4	6	7	8					
5	7	8	9	10				
6	8	9	10	11	12			
7	9	10	11	12	13	14		
8	10	11	12	13	14	15	16	
9	11	12	13	14	15	16	17	18

The 36 Multiplication 'Learn Its'

x	2	3	4	5	6	7	8	9
2	4							
3	6	9						
4	8	12	16					
5	10	15	20	25				
6	12	18	24	30	36			
7	14	21	28	35	42	49		
8	16	24	32	40	48	56	64	
9	18	27	36	45	54	63	72	81

Foundation stage

Body Learn-Its	• 1 hand and 1 hand = 2 hands • 5 fingers and 5 fingers = 10 fingers
Finger doubles	Children can double numbers up to 5 by using fingers on each hand to show them.
Initial learn its- near doubles	Children can recall $1+2=3$ and $2+3=5$ rapidly.

Year 1

Add and subtract 0, 1 and 2 from a number up to 20	Children can use their knowledge of counting to quickly add and subtract 0, 1 and 2 from a number.
Add and subtract 10 to any one digit number.	Using place value knowledge, pupils can rapidly add 10 to a one digit number or subtract 10 from a teens number.
Know all number bonds to 10	Children can rapidly recall all number bonds to 10 without needing to calculate.
Double and half numbers to 20	Following practical and written methods, pupils are beginning to recall doubling and halving of numbers within 20.
Recall near number bonds	Use their understanding of number bonds to calculate. For example, " $7+2=9$ because $7+3=10$ so it's just one less"
Recall near doubles	Using their knowledge of doubles, children can calculate " $3+4=7$ because double 3 is 6 so it's just one more."

Year 2

Spot doubles and near doubles to add two or three single digit numbers	Using their knowledge of number bonds, near doubles and doubles, pupils can add a series of one digit numbers. "3+3+4=10 because double 3 is 6 and 6+4=10"
Partition to calculate	Can calculate by partitioning with numbers which do not cross the place value boundary- $23+45=?$ $40+20=60$ and $3+5=8$ then $60+8=68$
Add nine or eleven	Pupils can calculate by adding or subtracting 10 then adjusting their answer by adding or subtracting 1.
Double and half multiples of 10 up to 100	Children can rapidly recall double and half facts with multiples of 10
Double any number up to 100 by partitioning	Double tens and ones separately then recombine.

Year 3

Adjust multiples of ten to add then readjust.	$38+68=?$ $38+70=108$ $108-2=106$
Adjust to make ten then add the rest.	$28+13=30+11$ Children are introduced to this concept using the idea of calculation strings.
Recall near doubles to numbers under 20	Calculate using their knowledge of doubles e.g. "16+18 is double 16 then add on 2"
Double and half numbers to 100	Use their knowledge of place value as well as doubles and halves to calculate this rapidly. Double 64 is double 60 + double 4
Multiply and divide by 4 by doubling and halving twice	$34 \times 4 = 34 \times 2 \times 2$

Year 4

Can count on and back in tenths and calculate in tenths	Children can use their place value knowledge to count on then calculate quickly with tenths.
Adjust multiples of 10 or 100 to calculate	$138 + 69$? by $138 + 70 = 208$ $208 - 1 = 207$
Partition decimal numbers to calculate	$3.2 + 2.1 = ?$ by $3+2 = 5$ $0.2 + 0.1 = 0.3$ $5+0.3 = 5.3$
Near doubles up to 100	$75 + 76 =$ double 75 plus 1

Year 5

Near doubles with decimals	$2.5 + 2.6$ is double 2.5 then add 0.1
Double and half decimal numbers by partitioning.	Can double and half numbers with up to one decimal place by partitioning – half of 8.4 by halving 8 and halving 0.4

Year 6

Children can use all of their mental calculation methods effectively alongside the written methods to successfully calculate in a range of different contexts.