

Multiplication: Green (Y3)

Mental Work

Derive and recall

- multiplication facts for the 2, 3, 4, 5, 8 and 10 times tables
- doubles of multiples of 10 to 100, e.g. double 90

Work mentally (with jottings if needed)

- double any multiple of 5 up to 100, e.g. double 35 (partition: double the tens and ones separately then recombine)
- multiply 1-digit or 2-digit numbers by 10 or 100, e.g. 7×100 , 46×10 , 54×100 (recognise that when multiplying by 10 or 100 the digits move one or two places to the left and zero is used as a placeholder)

Children should be encouraged to:

- * **approximate** their answers before calculating
- * **consider if a mental calculation** would be appropriate **before** using written methods
- * **check their answers** after calculation using an appropriate strategy

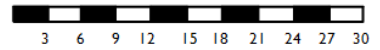
Practical work

To support knowledge of 2, 5 and 10 x table

- Use 2p, 5p and 10p coins to count amounts of money
- Use 20 cards ITP (deck as a times table)

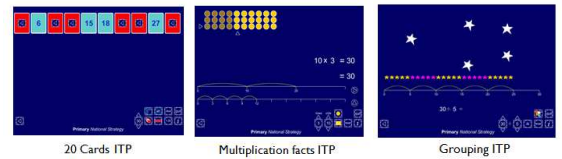


Use counting stick



To support understanding of multiplication

- Use arrays, e.g. bun tins, egg boxes, bars of chocolate, sticker sheets
- Use **Multiplication Facts ITP**
- Use **Grouping ITP** (links with division)
- Use overlaying **Cuisenaire rods**, e.g. three 3s over 9

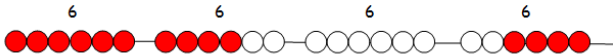


To support multiplying by 10 and 100

- Use **place value slider**
- Use **Moving Digits ITP**

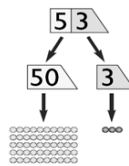


Moving Digits ITP



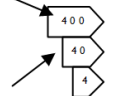
To support partitioning numbers

- Use **place value cards and Base 10 materials** of each amount



H	T	U
		4
	4	0
4	0	0

When X 100 move digits two place to left

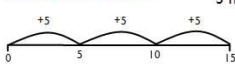


When X 10 move digits one place to left

Number lines



5×3
5 multiplied by 3
3 lots of 5
3 hops of 5



$5 + 5 + 5$

to show repeated addition

Scaling



This will lead to work on proportion in Y4

To understand multiplication as scaling

Correspondence in which n objects are related to m objects. A number of times as wide or as tall

x	1	2	3	4	5	6	7	8	9	10
1	1	2	3	4	5	6	7	8	9	10
2	2	4	6	8	10	12	14	16	18	20
3	3	6	9	12	15	18	21	24	27	30
4	4	8	12	16	20	24	28	32	36	40
5	5	10	15	20	25	30	35	40	45	50
6	6	12	18	24	30	36	42	48	54	60
7	7	14	21	28	35	42	49	56	63	70
8	8	16	24	32	40	48	56	64	72	80
9	9	18	27	36	45	54	63	72	81	90
10	10	20	30	40	50	60	70	80	90	100

Use to support the calculation process

Teach children how to use a **multiplication grid**

Recording

Represent a **repeated addition** as a multiplication calculation ($U \times U$), e.g. $3 + 3 + 3 + 3 = 4 \times 3$

Represent an **array** as a multiplication calculation ($U \times U$), and understand that multiplication can be done in any order



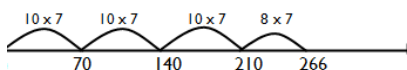
$5 \times 3 = 15$
 $3 \times 5 = 15$

Multiply a number by 10 or 100, showing an understanding of place value (use resources to explain)

e.g. $2 \times 10 = 20$ and $2 \times 100 = 200$

Partitioning

Use place value cards and/or informal jottings. Model using a numberline.



Missing number calculations

$\square \times 5 = 15$
 $\Delta \times \square = 20$

Use knowledge of partitioning, e.g. use knowledge that $30 \times 7 = 10 \times 3 \times 7$

Also record mental multiplication using partitioning

e.g. 14×3 $14 \times 3 = (10 + 4) \times 3$ 43×6 $(40 + 3) \times 6$
 $(10 \times 3) + (4 \times 3) = 30 + 12 = 42$ $(40 \times 6) + (3 \times 6) = 240 + 18 = 258$