Addition

Continue **bridging and partitioning** from year 2 extending to larger numbers and decimals

Partitioning

240 + 110
= 200 + 100 + 40 + 10
= 300 + 50
= 350

Unitising

0.3 +0.2
= 3 tenths + 2 tenths
= 5 tenths
= 0.5

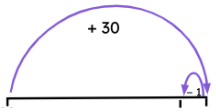
Redistribution (move 1 addend to another)

320 + 196 =
−4 ↓ ↓ +4
316 + 200 = 516

Compensation (change one number to make the calculation easier, then adjust back to keep the total correct.)

320 + 290 = 320 + 300 − 10
= 620 − 10
= 610

22 + 29 = 51
+1 ↓ ↑ −1
22 + 30 = 52



Column addition (including decimals)

	1	2.3	kg
+		4.8	kg
	1	7.1	kg
	1		

	1000s	100s	10s	1s
	6	3	7	8
	2	5	5	3
+	1	0	4	1
	9	9	7	2
		1	1	

Subtraction

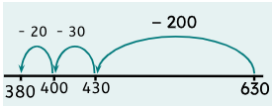
Partitioning

630 − 250 = 380
200 50

Unitising

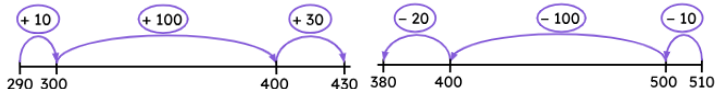
680 - 540 = 140
68 tens - 54 tens = 14 tens
50 4

Bridging



Difference (counting on or counting back)

430- 290 =140



510 – 380 =130

Column subtraction including decimals

	2	0	0	0	0
−		1	6	5	8
	1	8	3	4	2

	2 3.7		km
−	2.9		km
	0.8		km

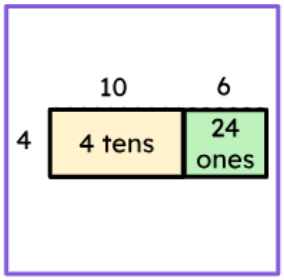
This would be best taught using compensation it is here to illustrate the strategy

Compensation- (both whole and part change by the same amount so difference remains the same)

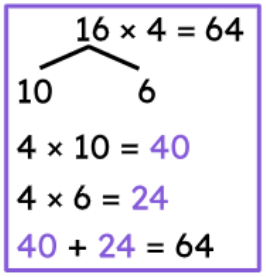
1000s	100s	10s	1s		1000s	100s	10s	1
6	0	0	0	−1 →	5	9	9	9
− 2	3	4	8	−1 →	− 2	3	4	7
					3	6	5	2

Multiplication

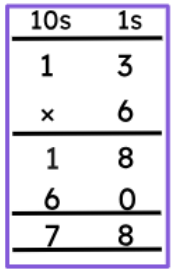
2-digit x 1-digit



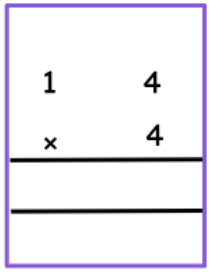
grid model



informal



expanded multiplication



short multiplication

3-digit x 1-digit

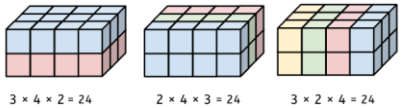
Expanded Multiplication

743 × 3

1,000s	100s	10s	1s
	7	4	3
×			3
			9
	1	2	0
2	1	0	0
2	2	2	9

If you change the order of the **factors**, the **product** remains the same. This is known as the **commutative** law.

4 × 2 × 3 = 2 × 3 × 4



Short Multiplication

148 × 6

1	4	8
×		6
8	8	8
2	4	

You can multiply different pairs of **factors** and the **product** will remain the same. This is known as the **associative** law.

(4 × 2) × 3 = 4 × (2 × 3)

The gardener plants 2 batches of cucumbers over the year.

In each packet, there are 50 cucumber seeds and she uses 4 packets for each batch.

How many cucumbers could she hope to grow in one year?

2 × 50 × 4

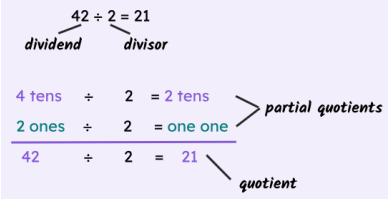
(2 × 50) × 4
100 × 4 = 400

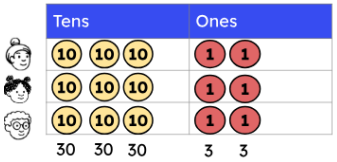
2 × (50 × 4)
2 × 200 = 400

Division

Division using partitioning (informal)

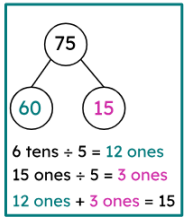
No regrouping





96 ÷ 3

Regrouping



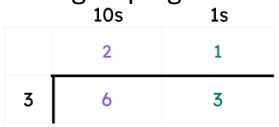
Izzy's method:

6 tens ÷ 5 = 12 ones
15 ones ÷ 5 = 3 ones
75 ÷ 5 = 15

Short division



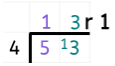
No regrouping

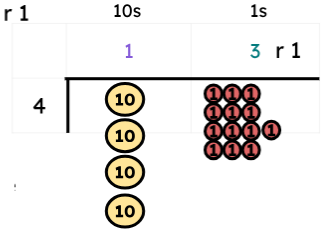


6 tens ÷ 3 = 2 tens
3 ones ÷ 3 = one one

Regrouping and remainders

53 ÷ 4 = 13 r 1





3-digit regrouping and remainder

