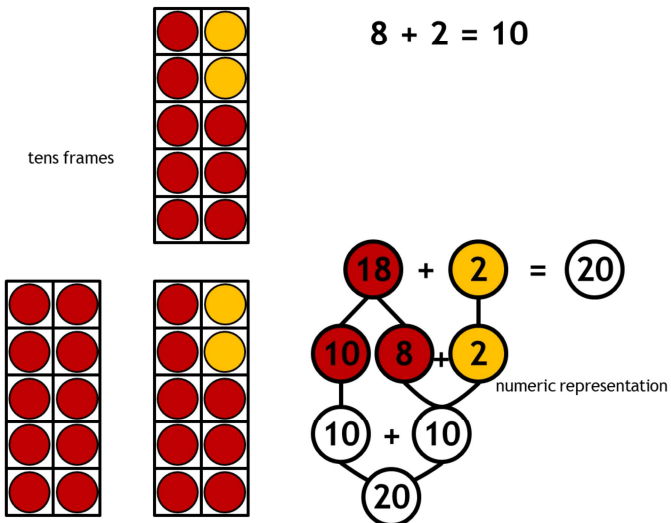


Number bonds for 20



BLOCK 1

Number bonds for 20

Partitioning first addend into tens and ones then combining ones, eg:

$18 + 2 = 10 + 8 + 2.$

NB Number bonds for 20 are revisited early on in the Block 2 unit on money.

Year 2 - Block 1

$32 + 4 = 36$

Add a two-digit number and ones - no exchanging



number track - counting on

partitioning first addend into tens and ones, then combining ones

column method supported by base ten

Add the ones

Add the tens

Add a two-digit number and ones - no exchanging

Three methods:

- counting on;
- partitioning first addend into tens and ones, then combining ones;
- column method.

Year 2 - Block 1

$3 + 2 = 5$ • $30 + 20 = 50$

Add multiples of ten

$3 + 2 =$



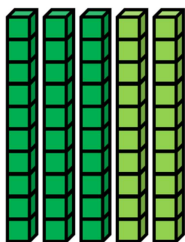
3 ones + 2 ones =

5



5 ones

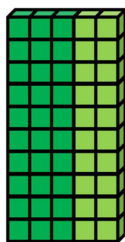
$30 + 20 =$



3 tens + 2 tens =

$\underline{30} + \underline{20} =$

50



5 tens

$\underline{50}$

base ten supports understanding of scaling

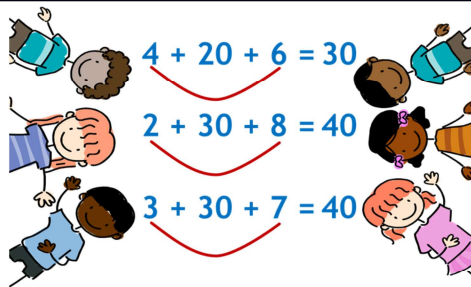
Add multiples of ten

Use known facts, eg:

$3 + 2 = 5$ so 3 tens + 2 tens = 5 tens.

Year 2 - Block 1

Friendly number pairs



4 + 20 + 6 = 30

2 + 30 + 8 = 40

3 + 30 + 7 = 40

number bonds from Year 1

Friendly number pairs

Friendly numbers fit together to make a number that is easy to work with. Re-ordering is often used to simplify calculations. Eg:

14 + 30 + 6 becomes 14 + 6 + 30 which becomes 20 + 30.

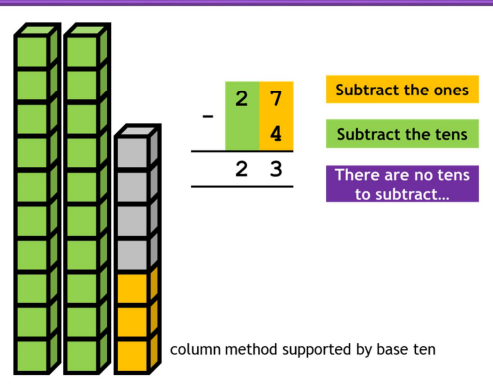
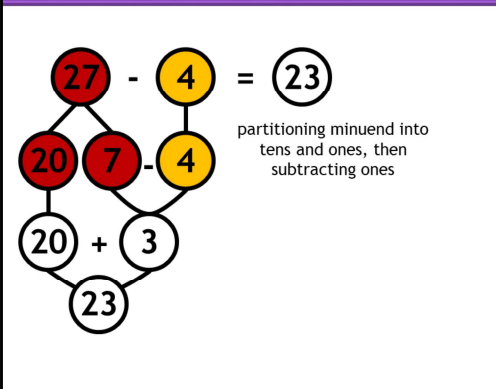
Year 2 - Block 1

$$27 - 4 = 23$$

Subtract ones from a two-digit number - no exchanging



number track - counting back



Subtract ones from a two-digit number - no exchanging

Three methods:

- counting back;
- partitioning minuend;
- column method.

Year 2 - Block 1

$$5 - 2 = 3 \bullet 50 - 20 = 30$$

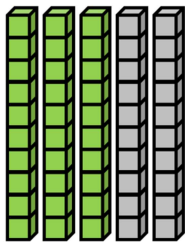
Subtract multiples of ten

$$5 - 2 = 3$$



$$5 \text{ ones} - 2 \text{ ones} = 3 \text{ ones}$$

$$50 - 20 = 30$$



$$5 \text{ tens} - 2 \text{ tens} = 3 \text{ tens}$$

$$\begin{array}{r} 50 \\ - 20 \\ \hline 30 \end{array}$$

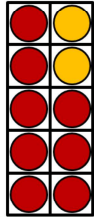
base ten supports understanding of scaling

Subtract multiples of ten

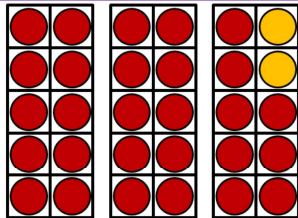
Use known facts, eg:

5 - 2 = 3 so 5 tens - 2 tens = 3 tens.

Subtract ones from a multiple of ten



$$\boxed{10} - \boxed{2} = \boxed{8}$$



$$\boxed{30} - \boxed{2} = \boxed{28}$$

tens frames representations support understanding of related facts

Subtract ones from a multiple of ten

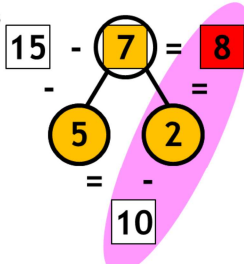
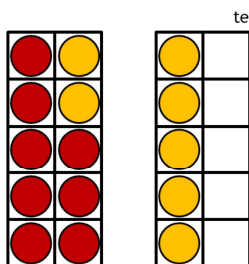
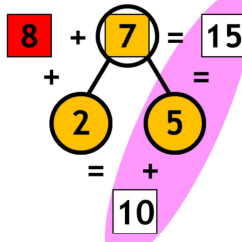
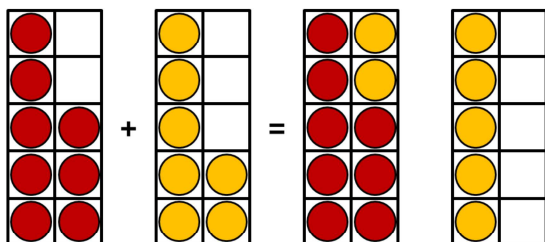
Use known facts, eg:

10 - 2 = 8 so 30 - 2 = 28.

Year 2 - Block 1

$8 + 7 = 15$ • $15 - 7 = 8$

Add single digit numbers bridging ten/ subtract single digit numbers from 11-18 bridging ten



tens frames

numeric representations

Add single digit numbers bridging ten

Making the next ten, eg:

$8 + 6 = 8 + 2 + 4$.

Subtract single digit numbers from 11-18 bridging ten

Making the previous ten, eg:

$15 - 8 = 15 - 5 - 3$.

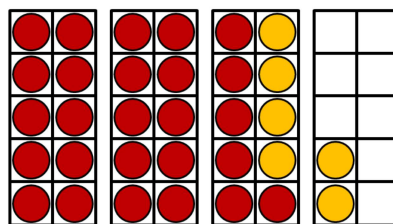
Year 2 - Block 2

$26 + 6 = 32$

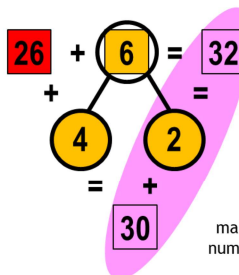
Add a two-digit number and ones

1	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

making the next ten -
100 square representation



making the next ten -
tens frame representation



making the next ten -
numeric representation

BLOCK 2

Add a two-digit number and ones

Three methods:

- making the next ten, eg:
 $28 + 6 = 28 + 2 + 4$;
- expanded column method (next page);
- compact column method (next page).

$26 + 6 = 32$

Add a two-digit number and ones

	T	O
	2	6
+		6
	1	2
	2	0
	3	2

expanded column method

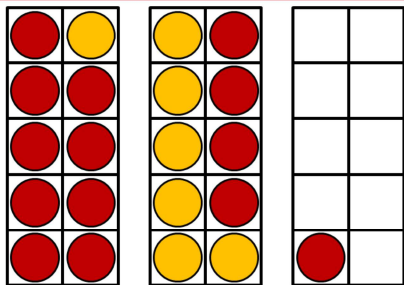
	T	O
	2	6
+		6
	3	2
	1	

compact column method

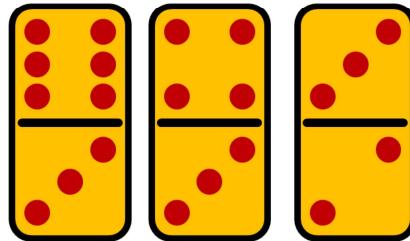
Year 2 - Block 2

$$9 + 7 + 5 = 21$$

Add 3 one-digit numbers



tens frames



dominoes



Cuisenaire® rods

Add 3 one-digit numbers

Children use their developing ability to make the next ten to add 3 one-digit numbers. The core representation is the tens frame, eg:

$$9 + 7 + 5 =$$

$$16 + 5 =$$

$$16 + 4 + 1 = 21$$

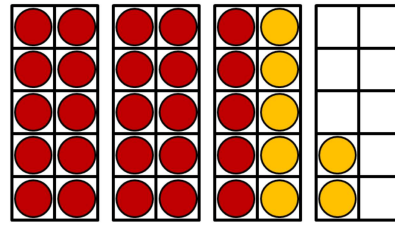
Year 2 - Block 2

$32 - 7 = 25$

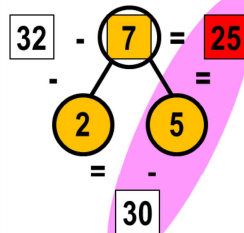
Subtract ones from a two-digit number

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25					
		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

making the previous ten -
100 square representation



making the previous ten -
tens frame representation



making the previous ten -
numeric representation

	T	O
	3	12
-		7
	2	5

compact column method

Subtract ones from a two-digit number

Two methods:

- making the previous ten;
- compact column method.

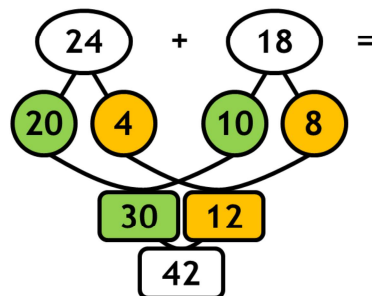
Year 2 - Block 2

$24 + 18 = 42$

Adding 2 two-digit numbers

1	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

partitioning the second addend-
100 square representation



partitioning both addends:
combine the tens; combine the ones; combine the results

Adding 2 two-digit numbers

Three methods:

- partitioning addends into tens and ones and combining;
- expanded column method (next page);
- compact column method (next page).

Year 2 - Block 2

$24 + 18 = 42$

Adding 2 two-digit numbers

	T	O
	2	4
+	1	8
	1	2
	3	0
	4	2

expanded column method

	T	O
	2	4
+	1	8
	4	2
	1	

compact column method

Add the ones.

$4 \text{ ones} + 8 \text{ ones} = 12 \text{ ones}$
 $12 \text{ ones} = 1 \text{ ten and } 2 \text{ ones}$

Add the tens.

$2 \text{ tens} + 1 \text{ ten} + 1 \text{ ten} = 4 \text{ tens}$

Language for the compact column method

The use of accurate language is essential to ensure conceptual understanding of the column method.

Avoid terms like 'units' and 'carry'.

Link to children's understanding of how base 10 works (the trading games played in place value unit 1).

Say:

Add the ones.

4 ones and 8 ones makes 12 ones.

12 ones is the same as 1 ten and 2 ones.

Add the tens.

2 tens and 1 ten and 1 ten makes 4 tens.

Year 2 - Block 2

$30 - 19 = 11$

Subtracting a two-digit number from a multiple of ten

1	2	3	4	5	6	7	8	9	10
11									
21	22	23	24	25	26	27	28	29	
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

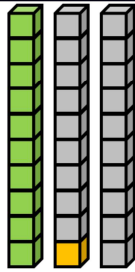
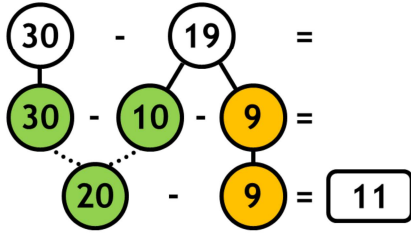
$30 - 19$ is the same as
 $30 - 10 - 9$.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
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

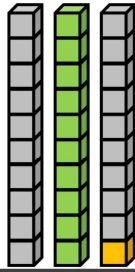
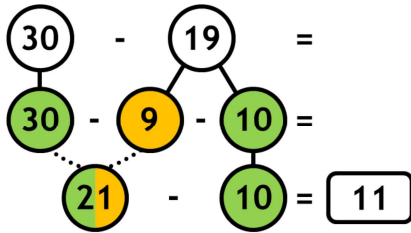
$30 - 19$ is the same as
 $30 - 9 - 10$.

Subtracting a two-digit number from a multiple of ten
Partitioning the subtrahend, eg:
 $30 - 19 = 30 - 10 - 9$.

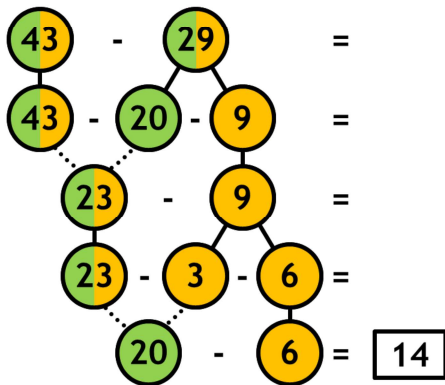
Subtracting a two-digit number from a multiple of ten



partitioning the subtrahend



Subtracting a two-digit number from a two-digit number



partitioning the subtrahend

Subtracting a two-digit number from a two-digit number

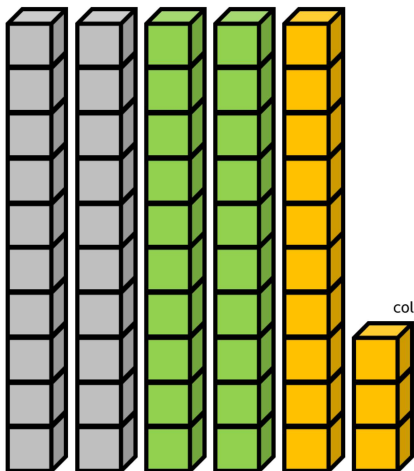
Two methods:

- partitioning the subtrahend;
- compact column method (next page).

Year 2 - Block 2

$43 - 29 = 14$

Subtracting a two-digit number from a two-digit number



	T	O
	3	13
-	2	9
	1	4

column method supported by base ten

Subtract 9 ones.

There are not enough ones.

Let's exchange 1 ten for 10 ones.

Subtract 9 ones.

Subtract 2 tens.

Language for the compact column method

As for addition, accurate use of language is essential to ensure conceptual understanding of the column method.

Do not use the term 'borrow'.

There are not enough ones in the situation *3 ones take away 9 ones*. So we need some more ones. Let's exchange/swap 1 ten for 10 ones. Now we have 13 ones. 13 ones take away 9 ones equals 4 ones.