# CALCULATION POLICY FOR ADDITION AND SUBTRACTION

## YEAR 2

| Year 2 | | | |
|---|---|---|---|
| | **Block 1** | **Block 2** | **Block 3** |
| **Calculation content** | **ADDITION AND SUBTRACTION (UNIT 1)**<br><br>• **Number bonds for 20** (r)<br>• **Add a two-digit number and ones** – no exchanging<br>• **Add multiples of ten**<br>• **Friendly number pairs**<br>• **Subtract ones from a two-digit number** – no exchanging<br>• **Subtract multiples of ten**<br>• **Subtract ones from a multiple of ten**<br>• **Add single digit numbers bridging ten** (eg 8 + 6)<br>• **Subtract single digit numbers from 11-18 bridging ten** (eg 15 – 8) | **MONEY (UNIT 1)**<br>• **Finding the total** (two-digit amount + 1 digit amount (no exchanging); add multiples of ten pence; adding single digit pounds bridging ten pounds)<br>• **Change** (change from 20p; change from 50p)<br><br>**ADDITION AND SUBTRACTION (UNIT 2)**<br><br>• **Add a two-digit number and ones** – bridging the next ten (eg 28 + 6)<br>• **Add 3 one-digit numbers**<br>• **Subtract ones from a two-digit number** – making the previous ten (eg 25 – 8)<br>• **Adding 2 two-digit numbers**<br>• **Subtracting a two-digit number from a multiple of ten**<br>• **Subtracting a two-digit number from a two-digit number** | **CALCULATION UNIT**<br><br>• **Adding two 2-digit numbers** (r)<br>• **Subtracting a 2-digit number from a 2-digit number** (r)<br><br>**MONEY (UNIT 2)**<br><br>• **Adding coins** (finding different combinations to make totals)<br>• **Adding notes** (adding multiples of ten and five)<br>• **Subtracting amounts of money** (eg £60 - £15 = £60 - £10 - £5) |

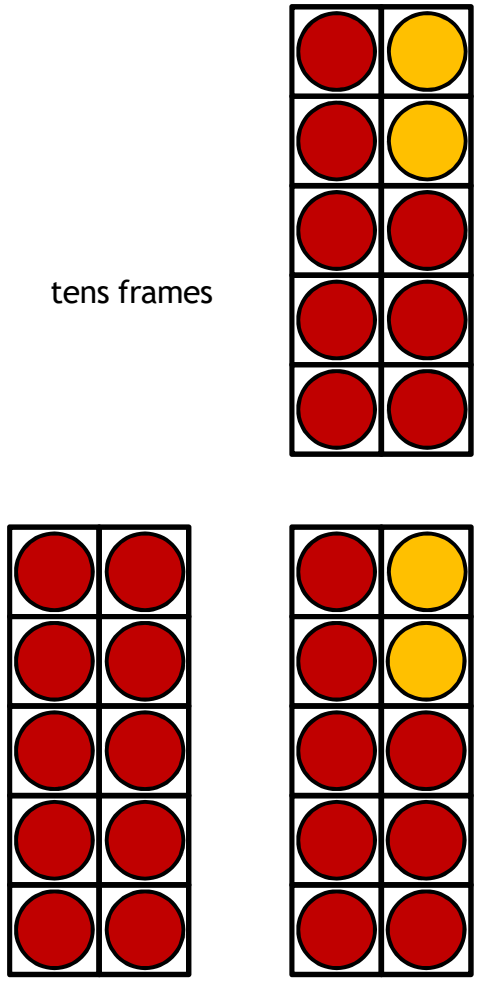
| Year 2 | | | |
|---|---|---|---|
| | **Block 1** | **Block 2** | **Block 3** |
| **Strategies/ methods** | Number bonds for 20<br>Partitioning first addend into tens and ones then combining ones, eg:<br>18 + 2 = 10 + 8 + 2.<br>*NB Number bonds for 20 are revisited early on in the Block 2 unit on money.*<br><br>Add a two-digit number and ones – no exchanging<br>Counting on;<br>partitioning first addend into tens and ones, then combining ones;<br>column method.<br><br>Add multiples of ten<br>Use known facts, eg:<br>3 + 2 = 5 so 3 tens + 2 tens = 5 tens.<br><br>Friendly number pairs<br>Friendly numbers fit together to make a number that is easy to work with. Re-ordering is often used to simplify calculations. Eg:<br>14 + 30 + 6 becomes 14 + 6 + 30 which becomes 20 + 30. | Finding the total<br>Two-digit amount + 1 digit amount (no exchanging) using partitioning, eg:<br>54p + 5p = 50p + 4p + 5p.<br>Column method used as well.<br><br>Add multiples of ten pence using representations of coins.<br><br>Adding single digit pounds bridging ten pounds, eg:<br>£8 + £6 = £8 + £2 + £4<br><br>Change<br>Change from 20p using tens frames and recall of number bonds for 20.<br><br>Change from 50p using base 10 and mental calculation to subtract multiples of five and ten from 50p. | Calculation unit<br>Revisits methods from Block 2.<br><br>Adding coins<br>Children use their mental calculation skills to find totals supported by representations of coins.<br><br>Adding notes<br><br>Children use their mental calculation skills to add multiples of ten and five pounds supported by representations of bank notes.<br><br>Subtracting amounts of money<br>Children subtract amounts using notes and coins. The core strategy is to partition the subtrahend, eg:<br>£60 - £15 = £60 - £10 - £5 |

| Year 2 | | | |
|---|---|---|---|
| | **Block 1** | **Block 2** | **Block 3** |
| **Strategies/ methods** | <u>Subtract ones from a two-digit number – no exchanging</u><br>Counting back;<br>partitioning minuend;<br>column method.<br><br><u>Subtract multiples of ten</u><br>Use known facts, eg:<br>5 – 2 = 3 so 5 tens - 2 tens = 3 tens.<br><br><u>Subtract ones from a multiple of ten</u><br>Use known facts, eg:<br>10 – 2 = 8 so 30 – 2 = 28.<br><br><u>Add single digit numbers bridging ten</u><br>Making the next ten, eg:<br>8 + 6 = 8 + 2 + 4.<br><br><u>Subtract single digit numbers from 11-18 bridging ten</u><br>Making the previous ten, eg:<br>15 – 8 = 15 – 5 – 3. | <u>Add a two-digit number and ones</u><br>Making the next ten, eg:<br>28 + 6 = 28 + 2 + 4;<br>expanded column method;<br>compact column method.<br><br><u>Add 3 one-digit numbers</u><br>Add 3 one-digit numbers<br>Children use their developing ability to make the next ten to add 3 one-digit numbers. The core representation is the tens frame, eg:<br>9 + 7 + 5 =<br>16 + 5 =<br>16 + 4 + 1 = 21<br><br><u>Subtract ones from a two-digit number</u><br>Making the previous ten;<br>compact column method.<br><br><u>Adding 2 two-digit numbers</u><br>Partitioning addends into tens and ones and combining;<br>expanded column method;<br>compact column method. | |

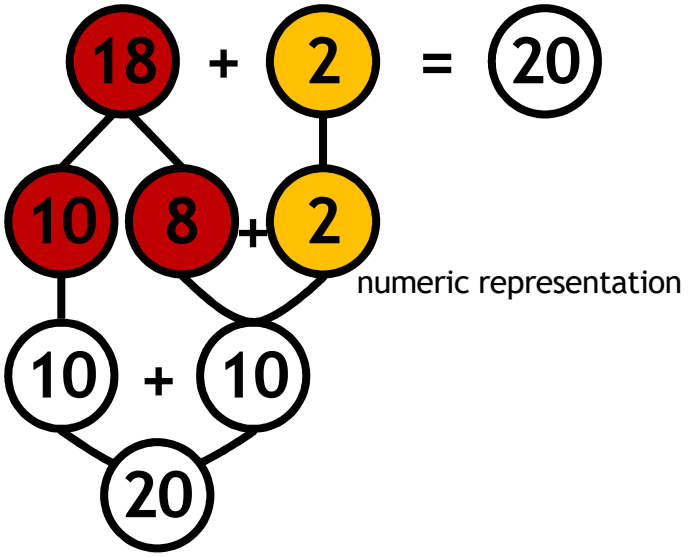
| Year 2 | | | |
|---|---|---|---|
| | Block 1 | Block 2 | Block 3 |
| **Strategies/ methods** | | <u>Subtracting a two-digit number from a multiple of ten</u><br>Partitioning the subtrahend, eg:<br>30 – 19 = 30 – 10 – 9.<br><br><u>Subtracting a two-digit number from a two-digit number</u><br>Partitioning the subtrahend;<br>compact column method. | |

## Number bonds for 20

tens frames



8 + 2 = 10

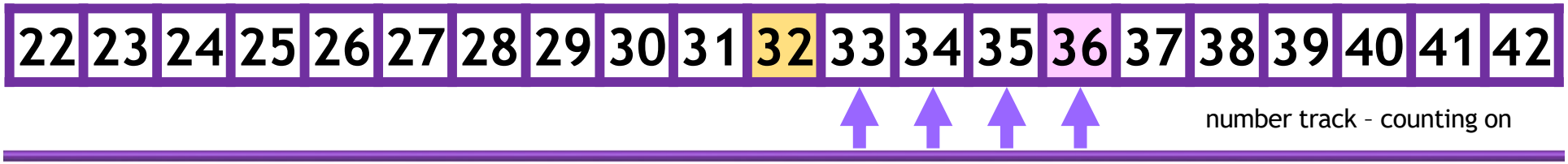



numeric representation

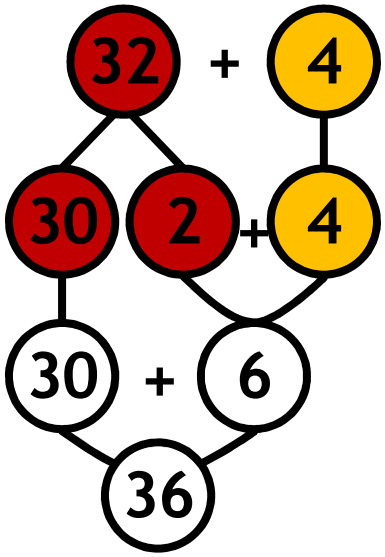
Year 2 - Block 1

32 + 4 = 36

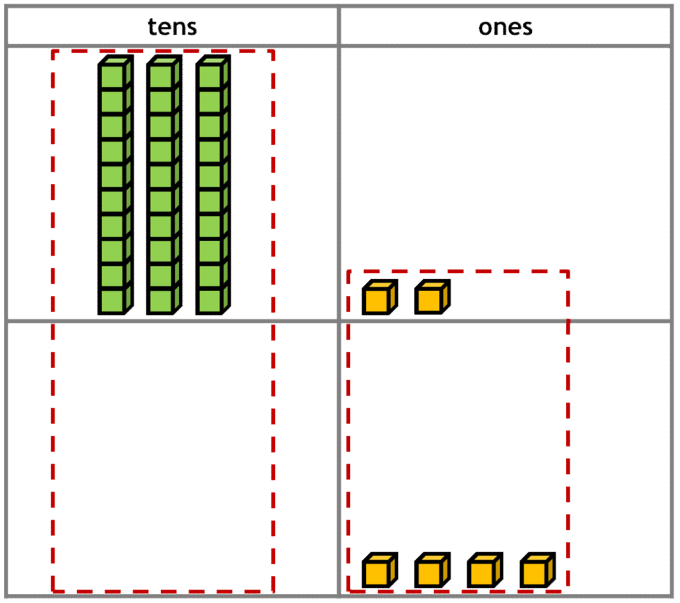
Add a two-digit number and ones - no exchanging




number track - counting on




partitioning first addend into tens and ones, then combining ones




Add the ones

Add the tens

| | | |
|---|---|---|
| | 3 | 2 |
| + | | 4 |
| | 3 | 6 |

column method supported by base ten

Year 2 - Block 1

3 + 2 = 5 • 30 + 20 = 50

**Add multiples of ten**

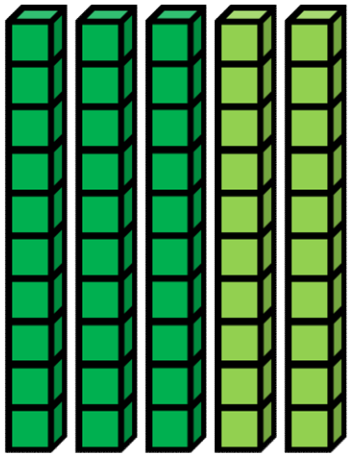
3 + 2 =

3 ones + 2 ones =

5

5 ones

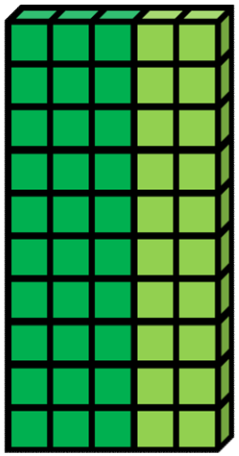
30 + 20 =



3 tens + 2 tens =

30 + 20 =

50



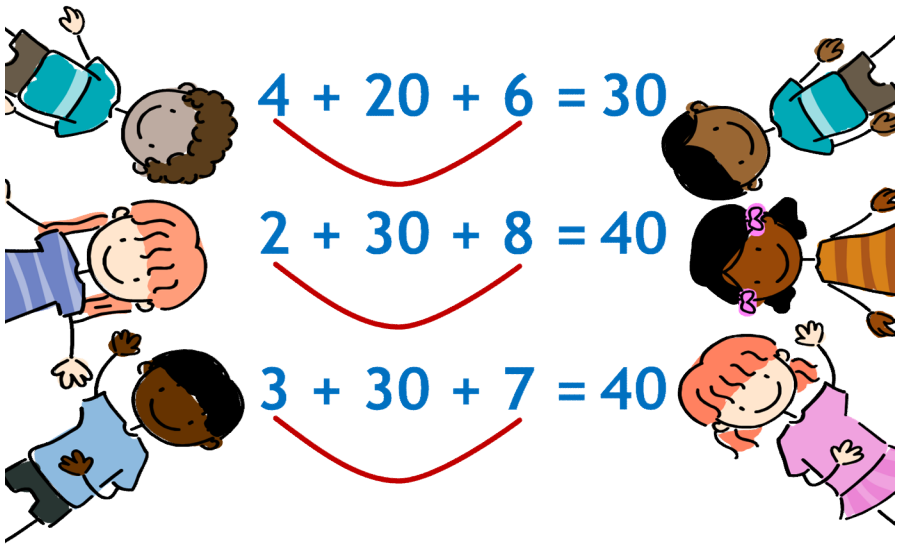
5 tens

50

base ten supports understanding of scaling

Year 2 - Block 1

**Friendly number pairs**

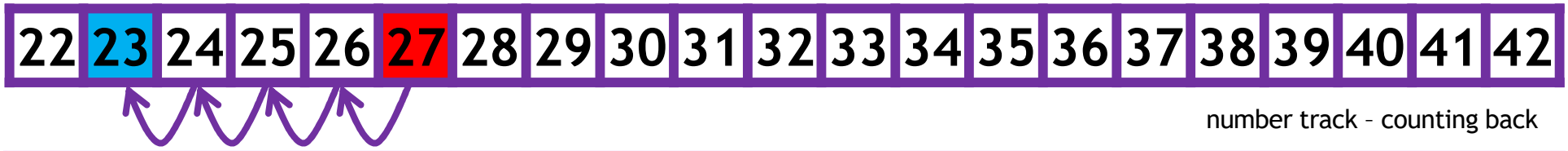



number bonds from Year 1

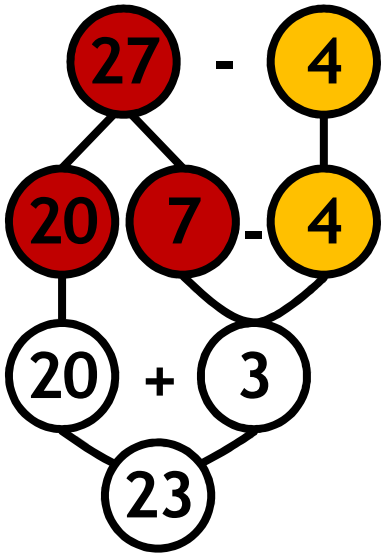
Year 2 - Block 1

## 27 - 4 = 23

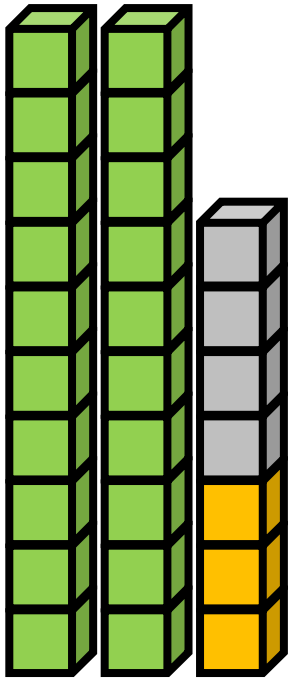
**Subtract ones from a two-digit number - no exchanging**




number track - counting back




partitioning minuend into tens and ones, then subtracting ones



column method supported by base ten

| | 2 | 7 |
|---|---|---|
| − | | 4 |
| | 2 | 3 |

Subtract the ones

Subtract the tens

There are no tens to subtract...

Year 2 - Block 1

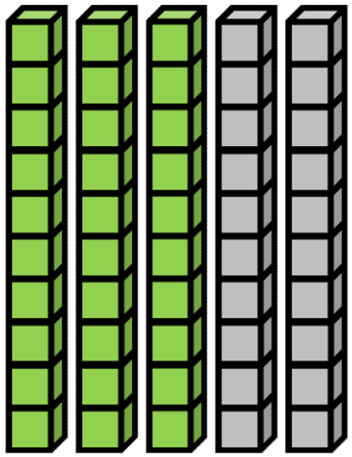
5 - 2 = 3 • 50 - 20 = 30

Subtract multiples of ten

5 - 2 = 3

5 ones - 2 ones = 3 ones

50 - 20 = 30



5 tens - 2 tens = 3 tens

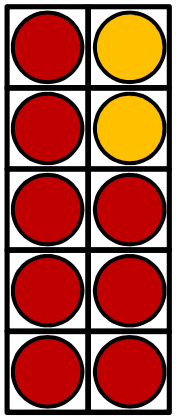
50 - 20 = 30

base ten supports understanding of scaling

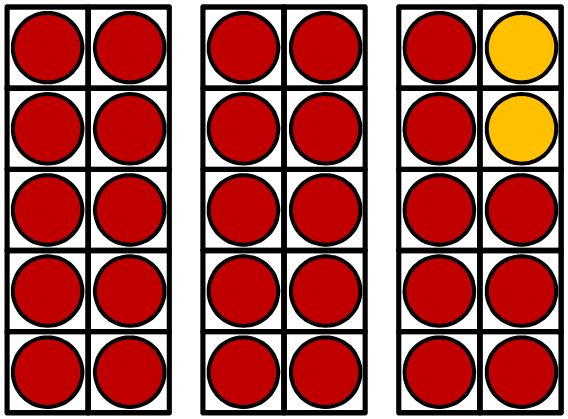
Year 2 - Block 1

**10 - 2 = 8 • 30 - 2 = 28**

**Subtract ones from a multiple of ten**



10 - 2 = 8



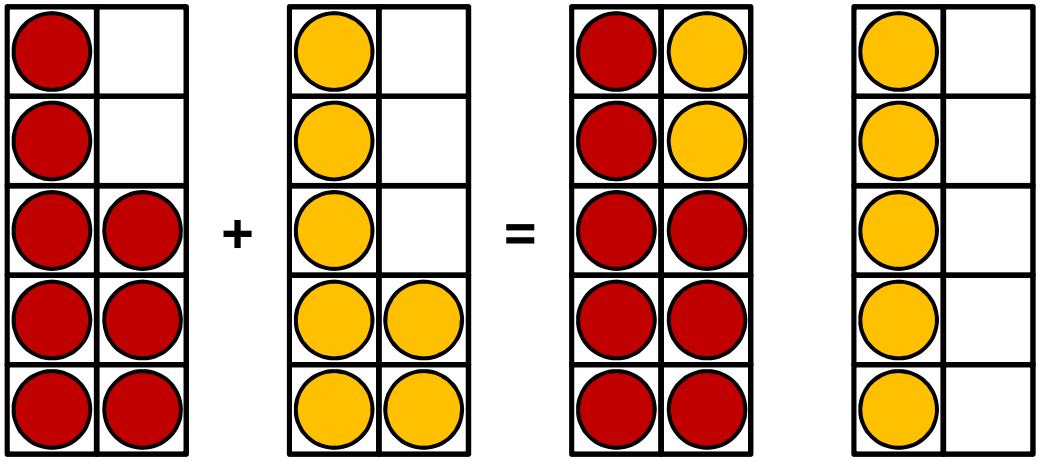
30 - 2 = 28

tens frames representations support understanding of related facts

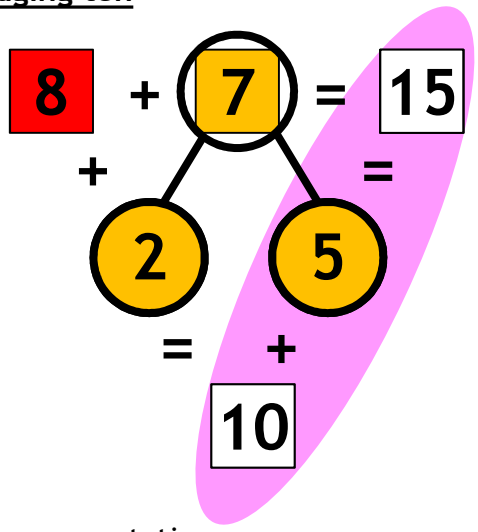
Year 2 - Block 1

8 + 7 = 15 • 15 - 7 = 8

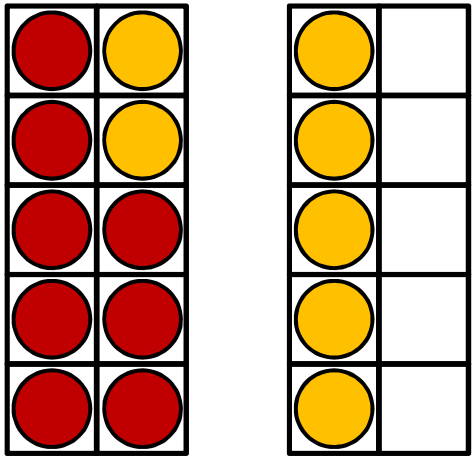
**Add single digit numbers bridging ten/ subtract single digit numbers from 11-18 bridging ten**

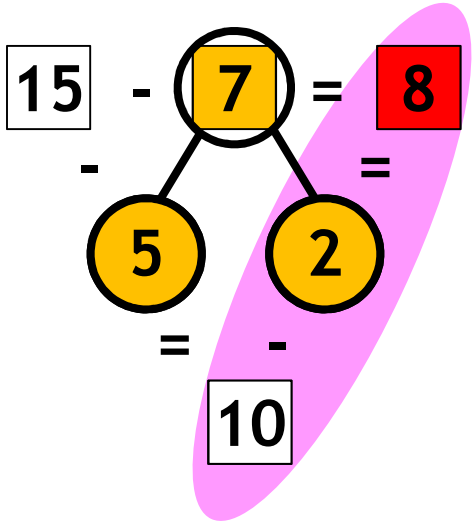


tens frames




numeric representations





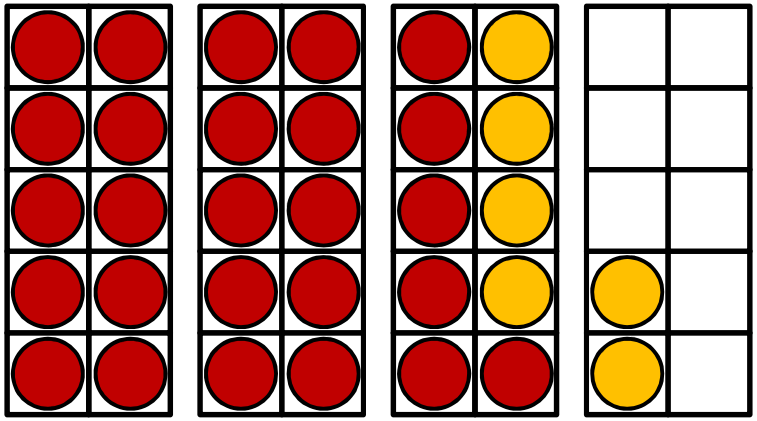
Year 2 - Block 2

26 + 6 = 32

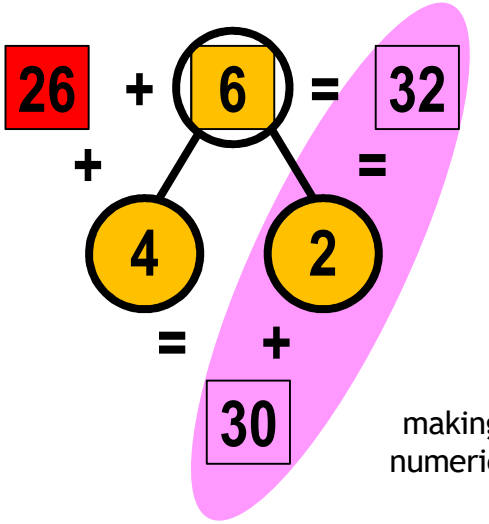
Add a two-digit number and ones

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 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

Year 2 - Block 2

## 26 + 6 = 32

**Add a two-digit number and ones**

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

expanded column method

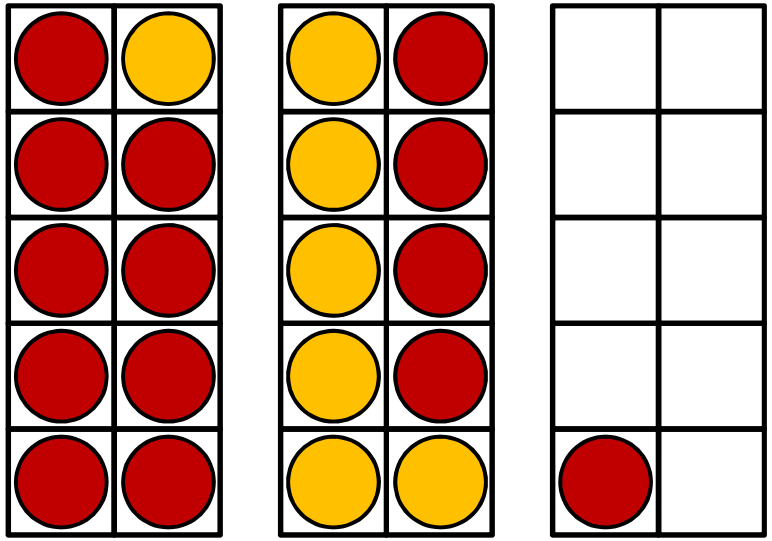
| | T | O |
|---|---|---|
| | 2 | 6 |
| + | | 6 |
| | 3 | 2 |
| | 1 | |

compact column method

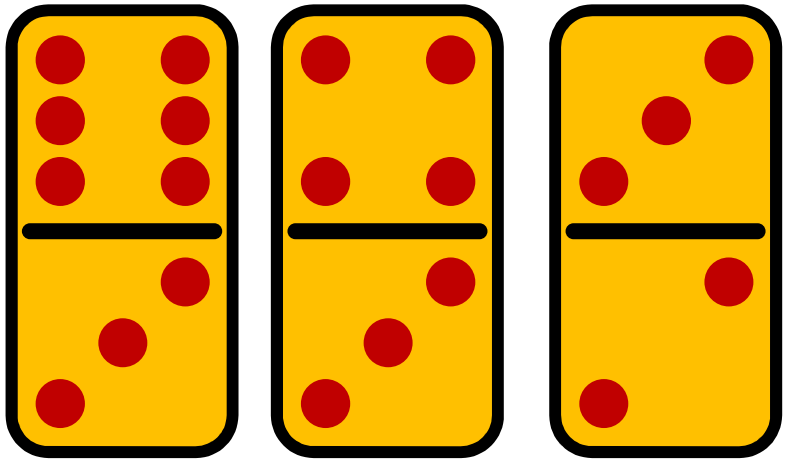
Year 2 - Block 2

9 + 7 + 5 = 21

**Add 3 one-digit numbers**



tens frames



dominoes


Cuisenaire® rods

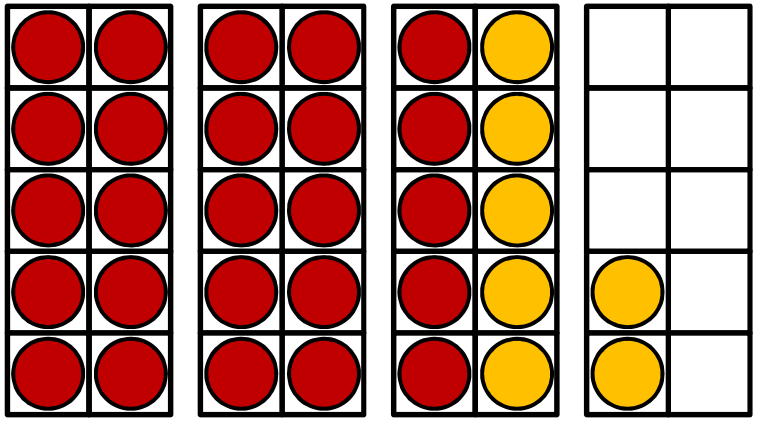
Year 2 - Block 2

## 32 - 7 = 25

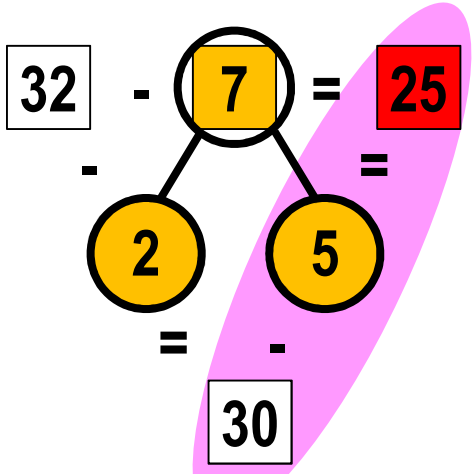
**Subtract ones from a two-digit number**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 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 |

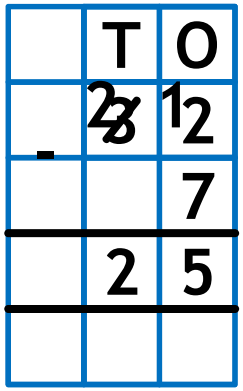
making the previous ten –
100 square representation



making the previous ten –
tens frame representation




making the previous ten –
numeric representation




compact column method

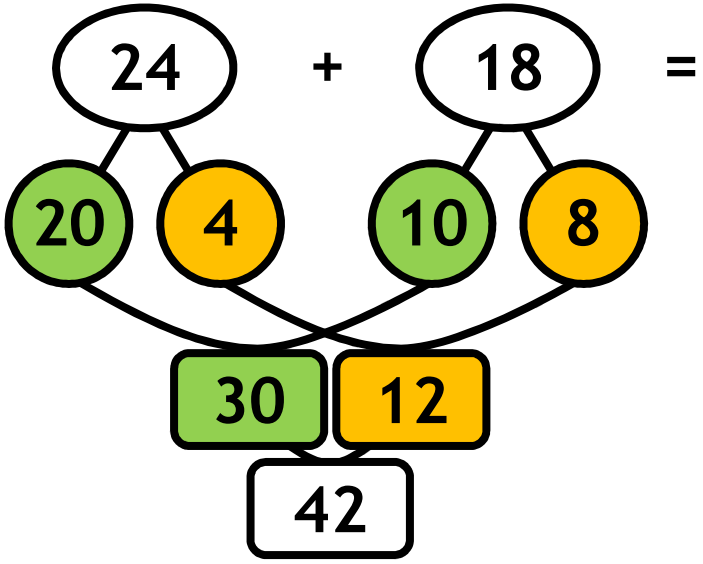
Year 2 - Block 2

## 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

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 ones + 8 ones = 12 ones*

*12 ones = 1 ten and 2 ones*

**Add the tens.**

*2 tens + 1 ten + 1 ten = 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.

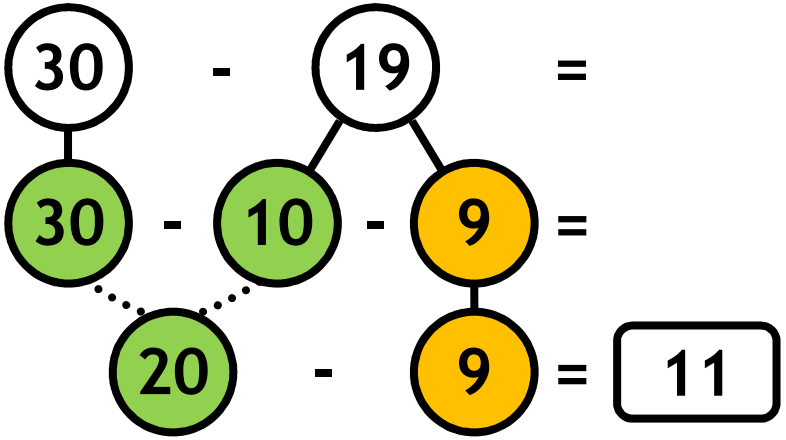
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| | | | | | | | | | |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 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 |

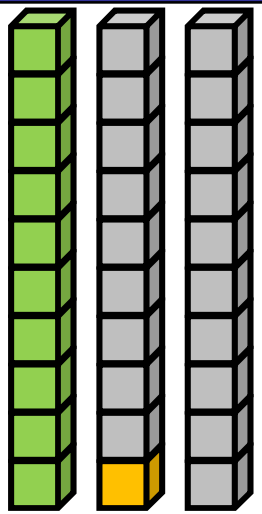
30 - 19 is the same as
30 - 9 - 10.

Year 2 - Block 2

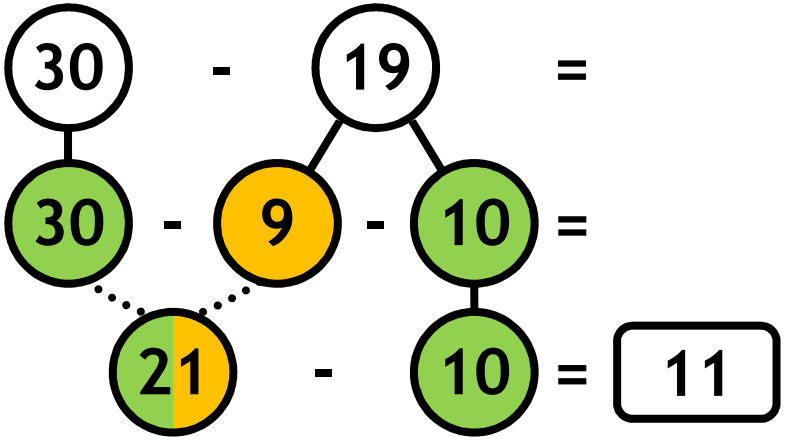
## 30 - 19 = 11

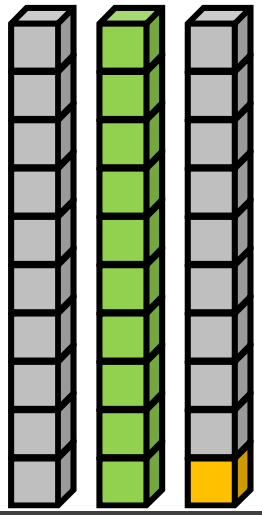
**Subtracting a two-digit number from a multiple of ten**



partitioning the subtrahend

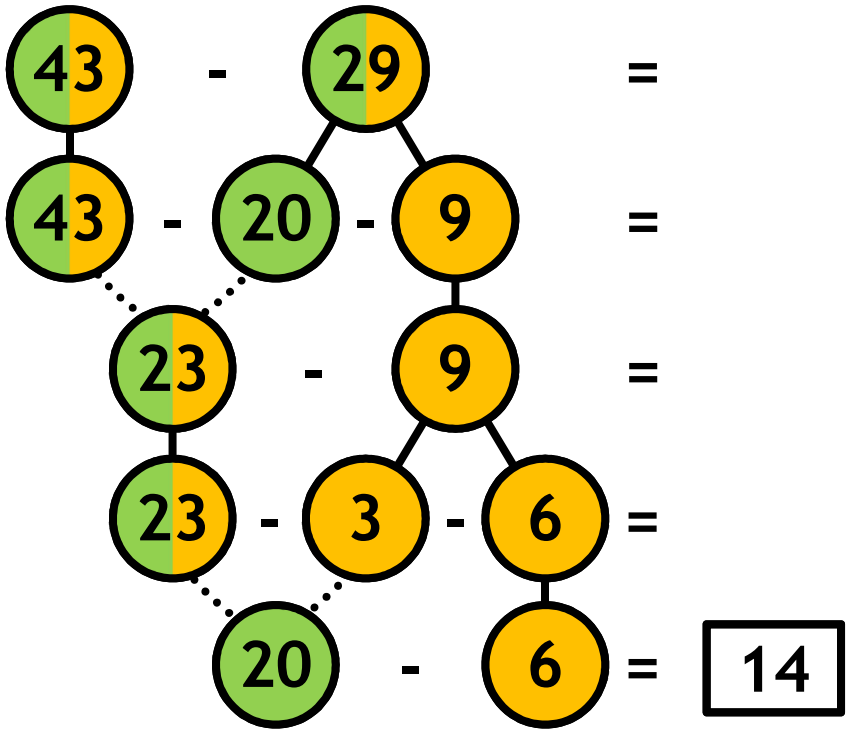


Year 2 - Block 2

43 - 29 = 14

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

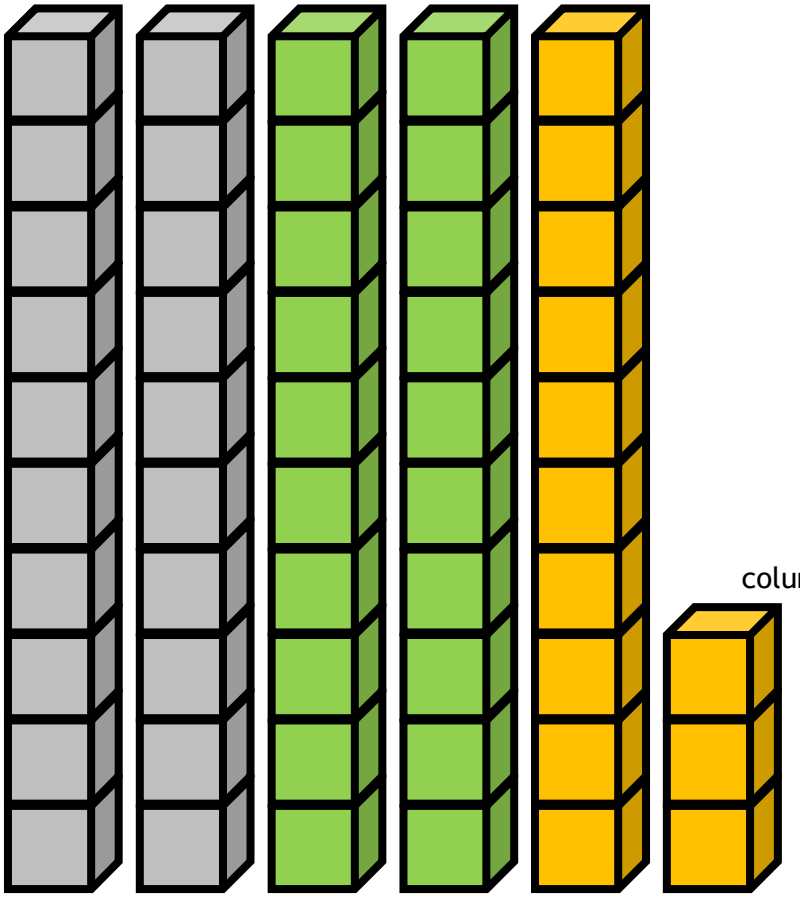



partitioning the subtrahend

Year 2 - Block 2

43 - 29 = 14

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



| | T | O |
|---|---|---|
| | 3 ~~4~~ | 1 3 |
| - | 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.