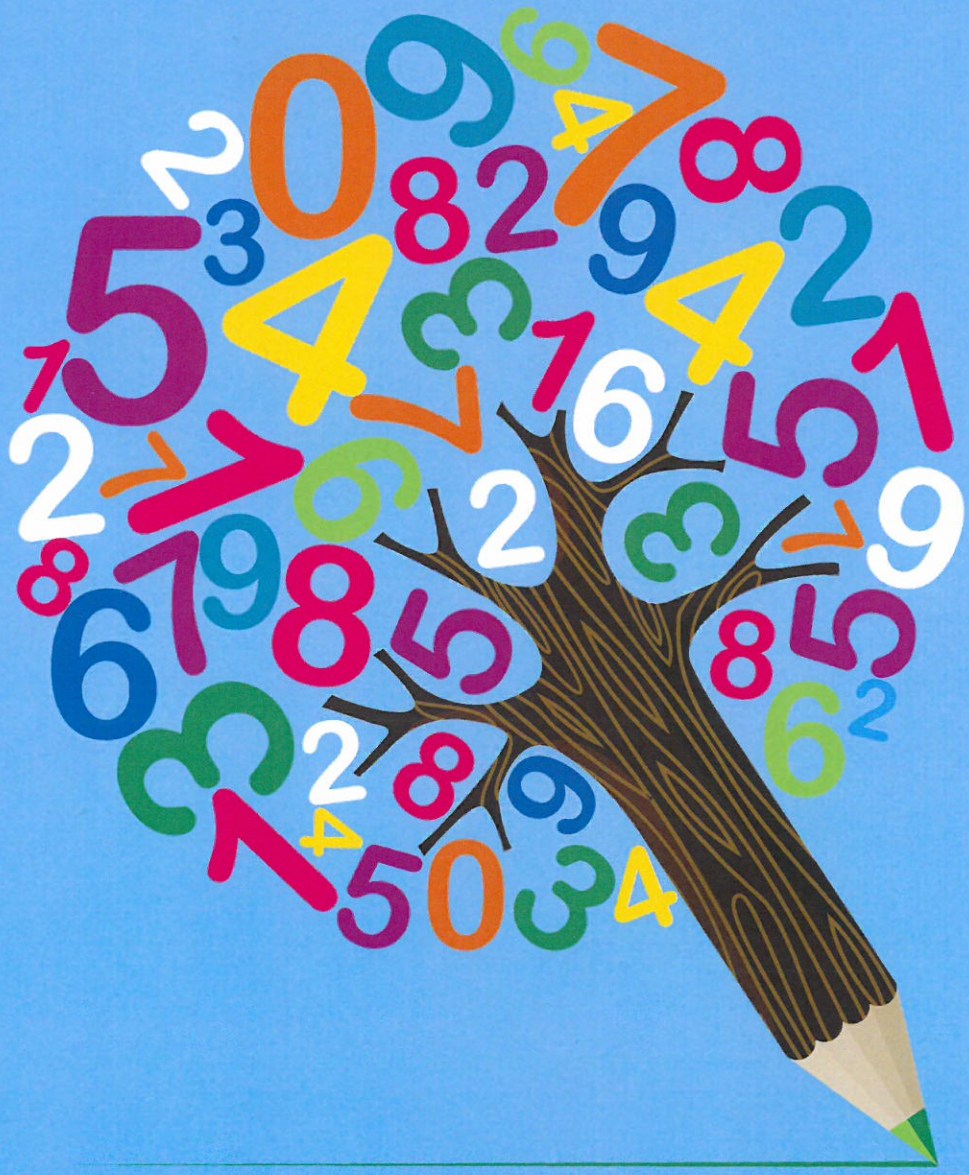
Addition and Subtraction



Stage 1

POINTS TO REMEMBER

- Use the language '**calculation**' not 'sum' ('sum' means 'plus or 'total'.)
- Use the language '**digit**' not number (number is the amount or quantity)

+ + + + + + + + + Addition + + + + + + + + +

VOCABULARY Ensure the correct vocabulary is used at all stages of learning

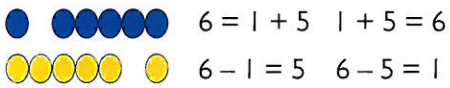
add, addition, more, plus, increase, sum, total, altogether, double, near double, difference, same as, equals, sign, tens boundary, hundreds boundary, units/ones boundary, tenths boundary, inverse, how many more to make...?, is the same as, equals, sign, tens boundary, hundreds boundary, ones boundary, tenths boundary, inverse

Children will use practical equipment to combine groups of objects to find a total. Practical resources will support children's development of mental pictures and images.

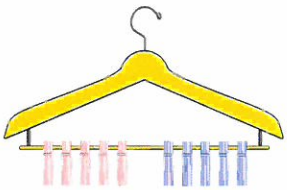
Children will begin to understand commutativity and the principle of exchange. They will be confident in using the terms 'worth' and 'value' when talking about single-digit numbers.

Children can represent calculations using objects and talk about their representations.

Fingers



Beads or any object



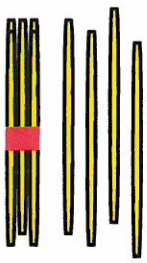
Pegs

Counters

Cubes

Cuisenaire Rods

Numicon



Straws

Stage 1

POINTS TO REMEMBER

- Use the language '**calculation**' not 'sum' ('sum' means 'plus or 'total'.)
- Use the language '**digit**' not number (number is the amount or quantity)

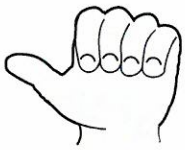
Subtraction

VOCABULARY Ensure the correct vocabulary is used at all stages of learning

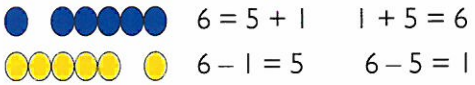
subtract, subtraction, take away, minus, decrease, leave, how many are left/left over?, difference between, half, halve, how many more/fewer is../than...?, how much more/less is...?, is the same as, equals, sign, tens boundary, hundreds boundary, ones boundary, tenths boundary, inverse

Children will use practical equipment to physically remove an amount from the group to find the total remaining. Practical resources will support children's development of mental pictures and images.

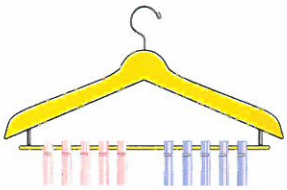
Children can represent calculations using objects and talk about their representations.



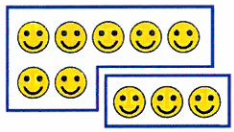
Fingers



Beads or any object



Pegs

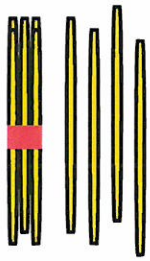


Counters

Cubes

Cuisenaire Rods

Numicon



Straws

Children will also be introduced to the language of comparison including equal use of the vocabulary 'less' and 'more'.

There are more blue than red.
There are less red than blue.

Cubes

POINTS TO REMEMBER

- Use the language '**calculation**' not 'sum' ('sum' means 'plus or 'total'.)
- Use the language '**digit**' not number (number is the amount or quantity)

+ + + + + + + + + Addition + + + + + + + + +

VOCABULARY Ensure the correct vocabulary is used at all stages of learning

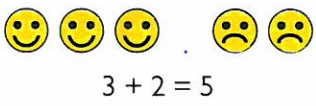
add, addition, more, plus, increase, sum, total, altogether, double, near double, difference, same as, equals, sign, tens boundary, hundreds boundary, units/ones boundary, tenths boundary, inverse, how many more to make...?, is the same as, equals, sign, tens boundary, hundreds boundary, ones boundary, tenths boundary, inverse

Practical resources will continue to support children's development of mental pictures and images. As these become firm, children will begin to develop ways to represent their mental images and their practical resources using pictures.

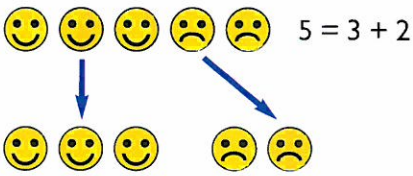
The children will begin to use number sentences alongside their pictures and practical resources.

They will also begin to think and talk flexibly about addition.

The direct link between addition and subtraction should be made explicit when using models and representations.

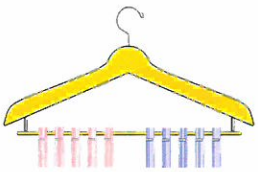


3 + 2 = 5

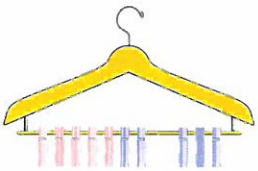


5 = 3 + 2

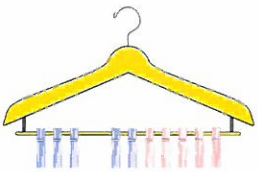
3 + 2 = 5



10 = 5 + 5

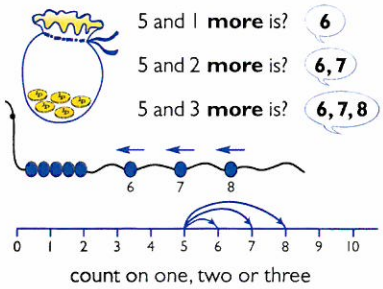


10 = 7 + 3

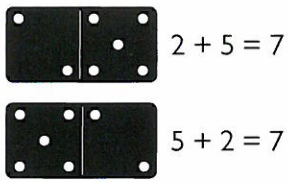


10 = 3 + 7

9 and 1 more is 10
9 add 1 equals 10
9 + 1 = 10

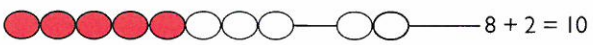


count on one, two or three



2 + 5 = 7

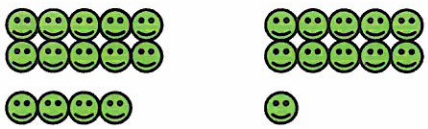
5 + 2 = 7

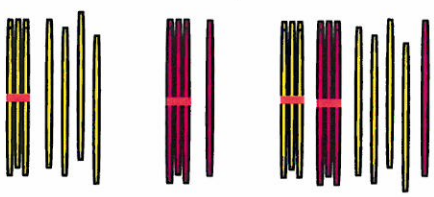


8 + 2 = 10

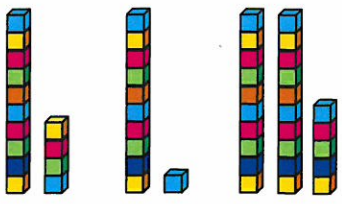
10 = 6 + 4

4 + 6 = 10





14 + 11 = 25



14 + 11 = 25

POINTS TO REMEMBER

- Use the language '**calculation**' not 'sum' ('sum' means 'plus or 'total'.)
- Use the language '**digit**' not number (number is the amount or quantity)

Subtraction

VOCABULARY Ensure the correct vocabulary is used at all stages of learning

subtract, subtraction, take away, minus, decrease, leave, how many are left/left over?, difference between, half, halve, how many more/fewer is../than...?, how much more/less is...?, is the same as, equals, sign, tens boundary, hundreds boundary, ones boundary, tenths boundary, inverse

Practical resources will continue to support children's development of mental pictures and images. As these become firm, children will begin to develop ways to represent their mental images and their practical resources using pictures.

The children will begin to use number sentences alongside their pictures and practical resources.

They will also begin to think and talk flexibly about subtraction and make links to the inverse of addition.

Children will understand that subtraction is not commutative and so the numbers in a calculation can be in any order but will result in a different answer.

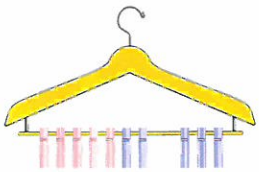
The direct link between addition and subtraction should be made explicit when using models and representations.

$6 + ? = 10$

$10 - 6 = ?$

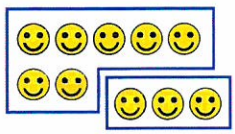
$? + 6 = 10$

$10 - 4 = 6$



$10 - 7 = 3$

$10 - 3 = 7$



$10 - 7 = 3$

$10 - 3 = 7$

$6 - 2 = 4$

Children will continue to be introduced to the language of comparison and its link to finding the difference structure of subtraction.

There are more blue than red.
There are less red than blue.
There are 9 more blue than red.
There are 9 less red than blue.

POINTS TO REMEMBER

- Use the language '**calculation**' not 'sum' ('sum' means 'plus or 'total'.)
- Use the language '**digit**' not number (number is the amount or quantity)

+ + + + + + + + Addition + + + + + + + +

VOCABULARY Ensure the correct vocabulary is used at all stages of learning

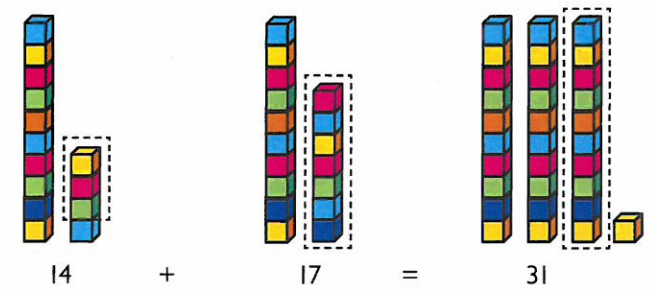
add, addition, more, plus, increase, sum, total, altogether, double, near double, difference, same as, equals, sign, tens boundary, hundreds boundary, units/ones boundary, tenths boundary, inverse, how many more to make...?, is the same as, equals, sign, tens boundary, hundreds boundary, ones boundary, tenths boundary, inverse

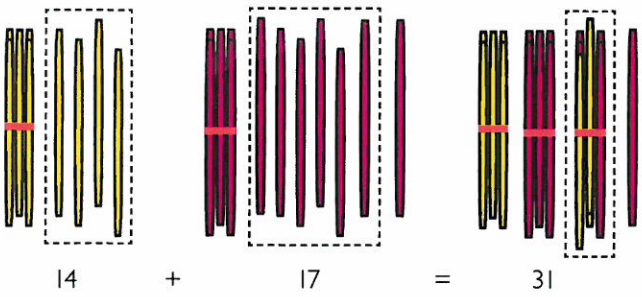
Children will now be confident in using concrete equipment to help them combine groups of objects with numbers up to 20.

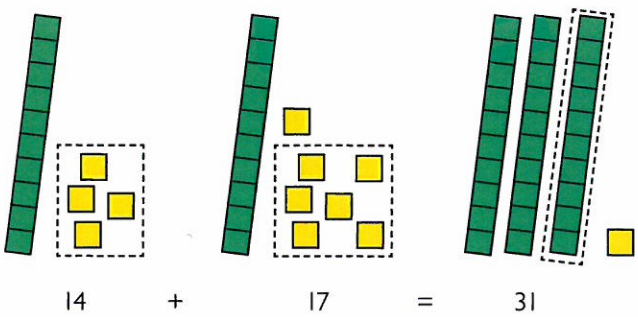
They will continue using practical equipment as they begin to also use number tracks, number lines and hundred squares to support their mental methods.

Children will start to work with totals greater than 20 which require them to apply their knowledge of the principle of exchange. They will talk confidently about this.

14 + 17







POINTS TO REMEMBER

- Use the language '**calculation**' not 'sum' ('sum' means 'plus or 'total'.)
- Use the language '**digit**' not number (number is the amount or quantity)

Subtraction

VOCABULARY Ensure the correct vocabulary is used at all stages of learning

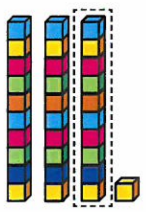
subtract, subtraction, take away, minus, decrease, leave, how many are left/left over?, difference between, half, halve, how many more/fewer is../than…?, how much more/less is…?, is the same as, equals, sign, tens boundary, hundreds boundary, ones boundary, tenths boundary, inverse

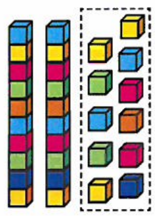
Children will now be confident in using concrete equipment to help them 'take away' and 'find the difference'.

They will continue using practical equipment as they begin to also use number tracks, number lines and hundred squares to support their mental methods.

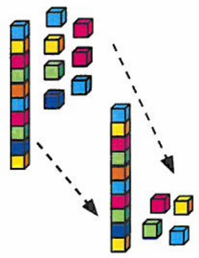
Children will start to work with numbers greater than 20 which require them to apply their knowledge of the principle of exchange. They will talk confidently about this.

31 – 14

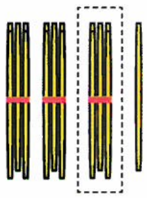


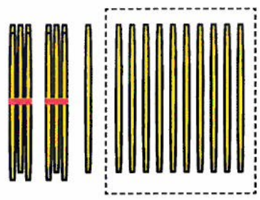


31 is repartitioned into 20 and 11 using the principle of exchange in order to enable us to remove the four ones associated with 14

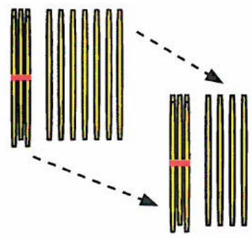


14 can now be removed from the 31 leaving 17

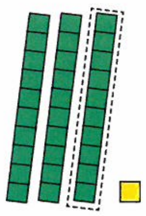


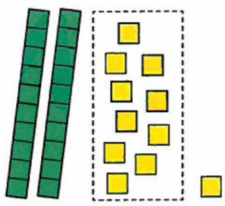


31 is repartitioned into 20 and 11 using the principle of exchange in order to enable us to remove the four ones associated with 14

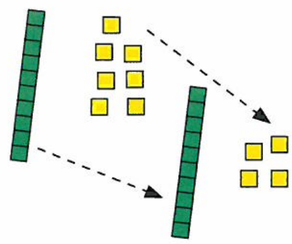


14 can now be removed from the 31 leaving 17





31 is repartitioned into 20 and 11 using the principle of exchange in order to enable us to remove the four ones associated with 14



14 can now be removed from the 31 leaving 17

As children become accustomed to repartitioning numbers, they can be introduced to formal notation of the repartitioning.

$^{2}\not{3}\;^{1}1$

"This is now 20 and 11."

Stage 4

POINTS TO REMEMBER

- Use the language '**calculation**' not 'sum' ('sum' means 'plus or 'total'.)
- Use the language '**digit**' not number (number is the amount or quantity)

+ + + + + + + + + Addition + + + + + + + + +

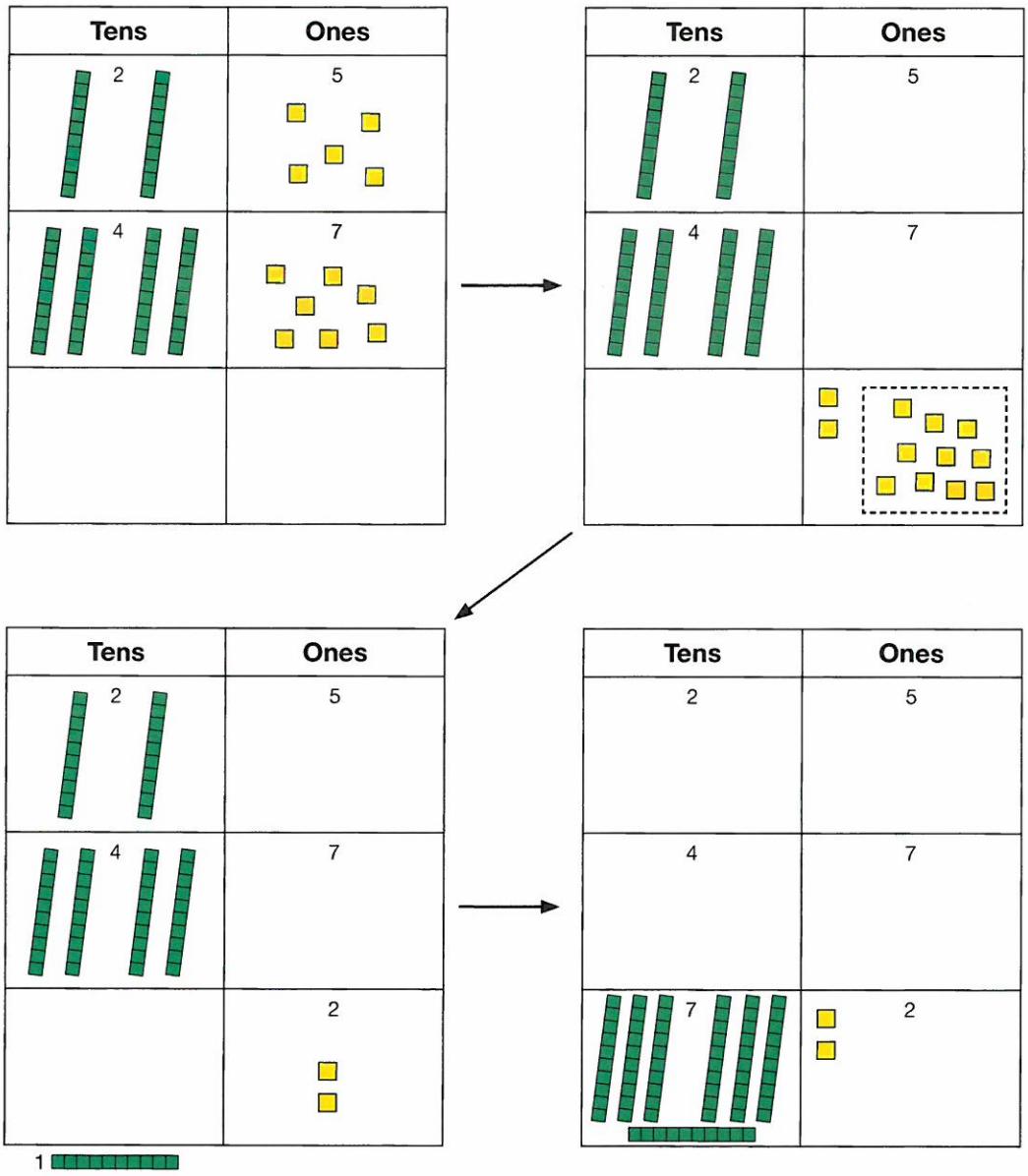
VOCABULARY **Ensure the correct vocabulary is used at all stages of learning**

add, addition, more, plus, increase, sum, total, altogether, double, near double, difference, same as, equals, sign, tens boundary, hundreds boundary, units/ones boundary, tenths boundary, inverse, how many more to make...?, is the same as, equals, sign, tens boundary, hundreds boundary, ones boundary, tenths boundary, inverse

Children are now confident in using concrete equipment to combine objects using the principle of exchange appropriately.

They will now begin to organise their concrete equipment (e.g. Straws, Dienes, Place Value Counters) in a vertical manner where their combined totals are situated at the bottom.

25 + 47



12 ones exchanged to 1 ten and 2 ones

POINTS TO REMEMBER

- Use the language '**calculation**' not 'sum' ('sum' means 'plus or 'total'.)
- Use the language '**digit**' not number (number is the amount or quantity)

Subtraction

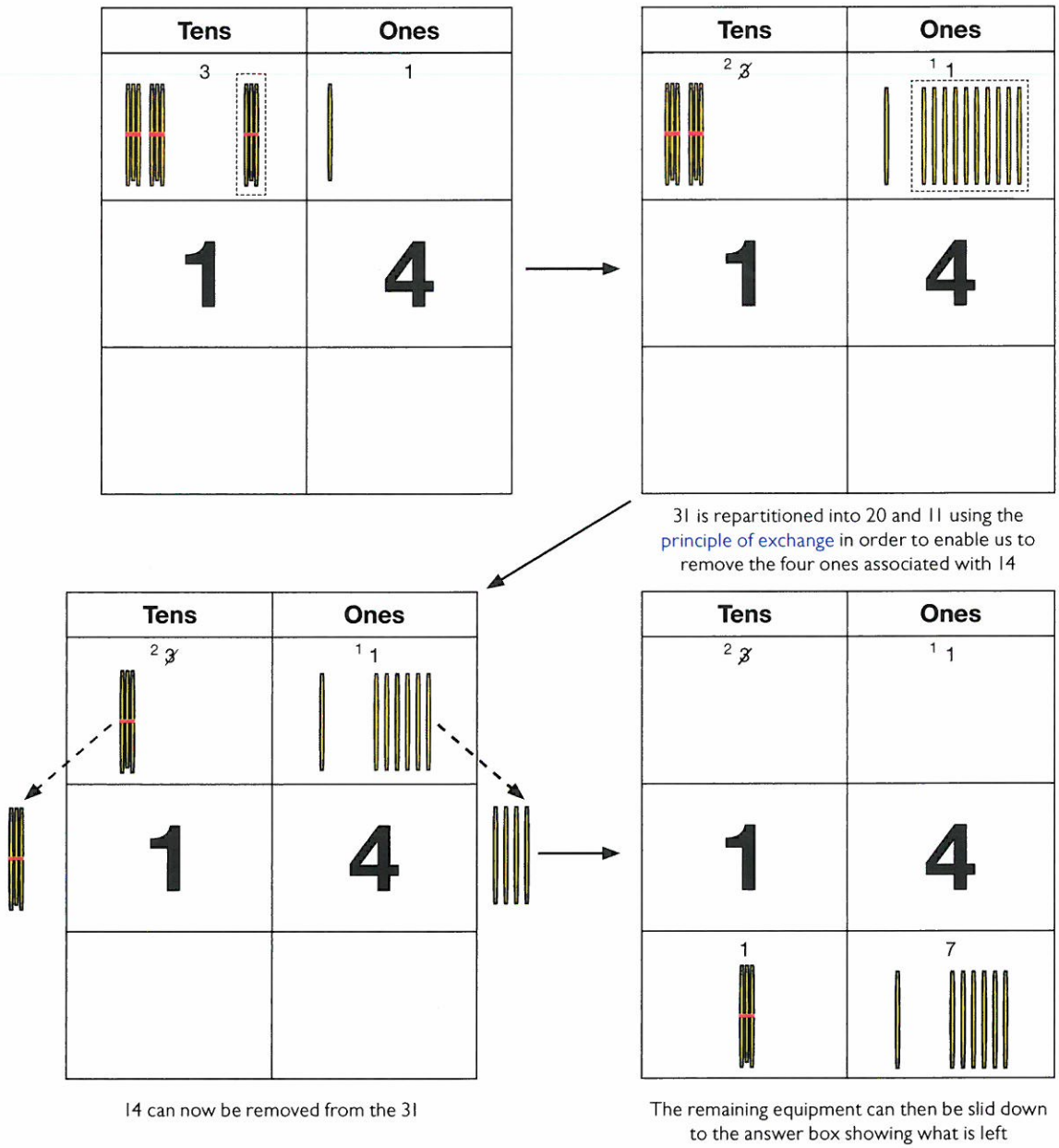
VOCABULARY Ensure the correct vocabulary is used at all stages of learning

subtract, subtraction, take away, minus, decrease, leave, how many are left/left over?, difference between, half, halve, how many more/fewer is../than...?, how much more/less is...?, is the same as, equals, sign, tens boundary, hundreds boundary, ones boundary, tenths boundary, inverse

Children are now confident in using concrete equipment to 'take away' and 'find the difference' using the principle of exchange appropriately.

They will now begin to organise their concrete equipment (e.g. Straws, Dienes, Place Value Counters) in a vertical manner where the amount that remains at the end of the calculation is situated at the bottom.

31 – 14



POINTS TO REMEMBER

- Use the language '**calculation**' not 'sum' ('sum' means 'plus or 'total'.)
- Use the language '**digit**' not number (number is the amount or quantity)

+ + + + + + + + + Addition + + + + + + + + +

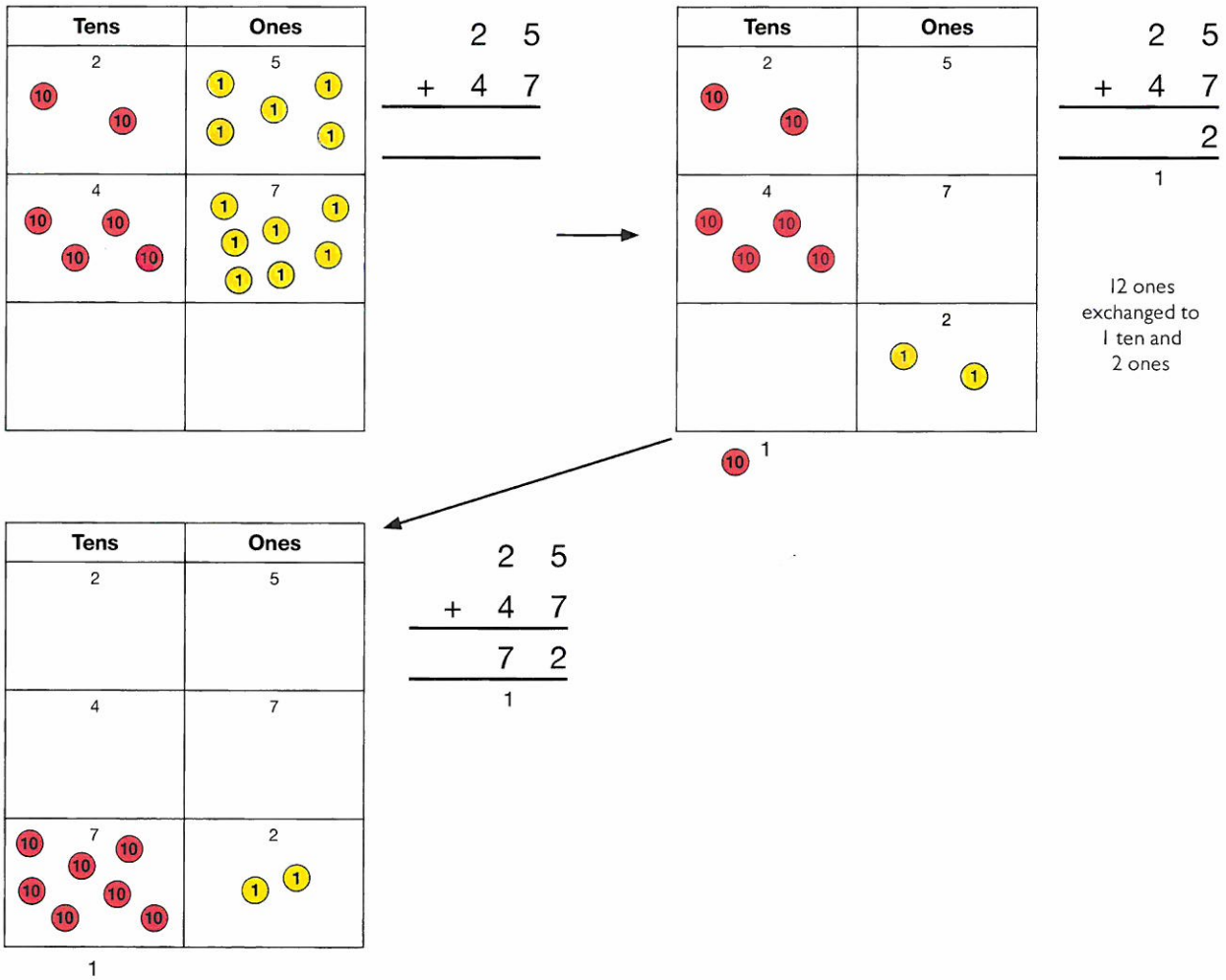
VOCABULARY Ensure the correct vocabulary is used at all stages of learning

add, addition, more, plus, increase, sum, total, altogether, double, near double, difference, same as, equals, sign, tens boundary, hundreds boundary, units/ones boundary, tenths boundary, inverse, how many more to make...?, is the same as, equals, sign, tens boundary, hundreds boundary, ones boundary, tenths boundary, inverse

Children will now be secure in organising their concrete equipment in a vertical manner where their combined totals are situated at the bottom.

They will be now able to make the links between this representation and the formal column addition when seen alongside each other.

25 + 47



POINTS TO REMEMBER

- Use the language '**calculation**' not 'sum' ('sum' means 'plus or 'total'.)
- Use the language '**digit**' not number (number is the amount or quantity)

Subtraction

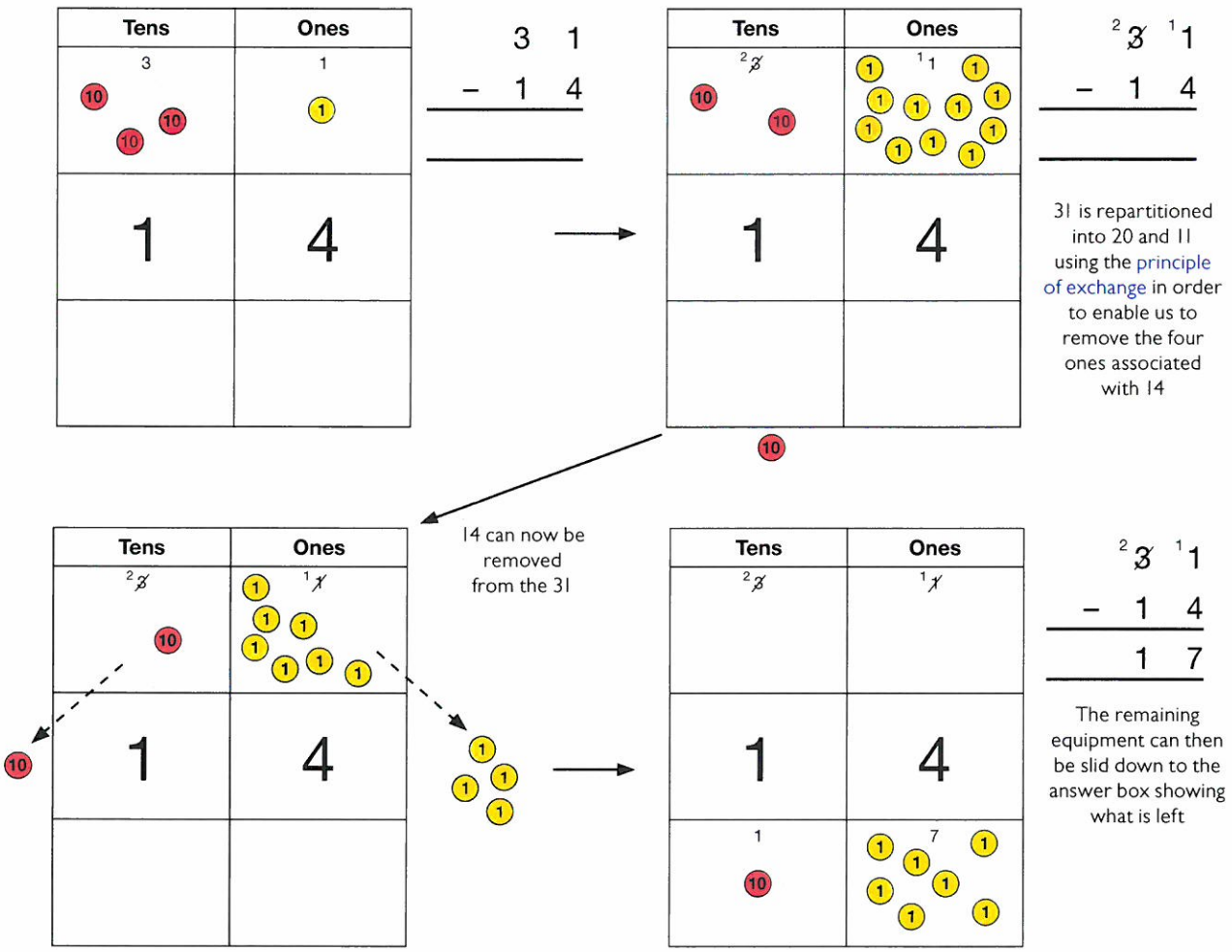
VOCABULARY Ensure the correct vocabulary is used at all stages of learning

subtract, subtraction, take away, minus, decrease, leave, how many are left/left over?, difference between, half, halve, how many more/fewer is../than...?, how much more/less is...?, is the same as, equals, sign, tens boundary, hundreds boundary, ones boundary, tenths boundary, inverse

Children will now be secure in organising their concrete equipment in a vertical manner for subtraction using the principle of exchange appropriately.

They will be now able to make the links between this representation and the formal column subtraction when seen alongside each other.

31 – 14



Stage 6

POINTS TO REMEMBER

- Use the language '**calculation**' not 'sum' ('sum' means 'plus or 'total'.)
- Use the language '**digit**' not number (number is the amount or quantity)

+ + + + + + + + + Addition + + + + + + + + +

VOCABULARY Ensure the correct vocabulary is used at all stages of learning

add, addition, more, plus, increase, sum, total, altogether, double, near double, difference, same as, equals, sign, tens boundary, hundreds boundary, units/ones boundary, tenths boundary, inverse, how many more to make...?, is the same as, equals, sign, tens boundary, hundreds boundary, ones boundary, tenths boundary, inverse

Children will have a full understanding of the links between the concrete representation for column addition and the formal written method.

They will now be able to explore calculating with larger numbers using their understanding of the formal written method.

$$\begin{array}{rrrr} & 3 & 2 & 7 \\ + & 4 & 9 & 6 \\ \hline & 8 & 2 & 3 \\ \hline & 1 & 1 & \end{array}$$

Calculating with decimals

When working with decimals, the above stages should always be followed to allow for the development of conceptual understanding. The use of concrete equipment is essential at these stages to secure understanding of the value of each digit in a number (e.g. Place Value Counters, Money). Wherever possible, decimal calculations should be linked to real-life experiences, e.g. money and measures.

POINTS TO REMEMBER

- Use the language '**calculation**' not 'sum' ('sum' means 'plus or 'total'.)
- Use the language '**digit**' not number (number is the amount or quantity)

Subtraction

VOCABULARY **Ensure the correct vocabulary is used at all stages of learning**

subtract, subtraction, take away, minus, decrease, leave, how many are left/left over?, difference between, half, halve, how many more/fewer is../than...?, how much more/less is...?, is the same as, equals, sign, tens boundary, hundreds boundary, ones boundary, tenths boundary, inverse

Children will have a full understanding of the links between the concrete representation for column subtraction and the formal written method.

They will now be able to explore calculating with larger numbers using their understanding of the formal written method.

$$\begin{array}{rrr} & {}^{7}\not{8} & {}^{1}4 \\ - & 2 & 5 \quad 9 \\ \hline & 5 & 2 \quad 5 \\ \hline \end{array}$$

Calculating with decimals

When working with decimals, the above stages should always be followed to allow for the development of conceptual understanding. The use of concrete equipment is essential at these stages to secure understanding of the value of each digit in a number (e.g. Place Value Counters, Money). Wherever possible, decimal calculations should be linked to real-life experiences, e.g. money and measures.