Subtraction Progression Policy

EYFS to Year 6

Subtraction- Progression in written method Y1 to Y6

Contextualise the mathematics
WHAT DOES THIS NUMBER REPRESENT?

Expose mathematical structure and work systematically

Expect children to use correct terminology and express reasoning

- Use **stem sentences**.
- Answer in **complete sentence**.

Identify difficult points

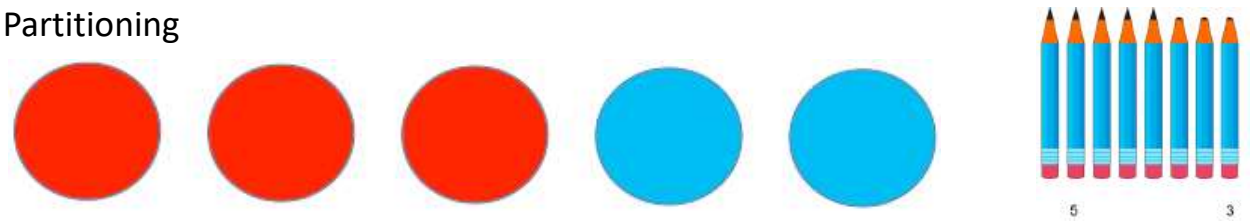
- Be aware of common misconceptions.
- Actively seek to uncover these.

Move between concrete, pictorial and the abstract (CPA)

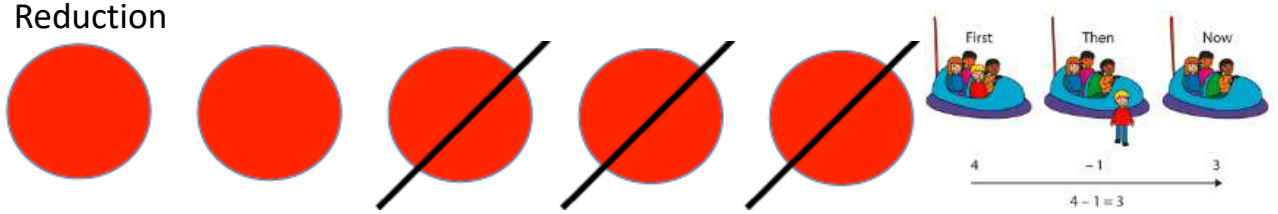
Teach inequality alongside all mathematical concepts.

< and > can also help deep understanding of key concepts.

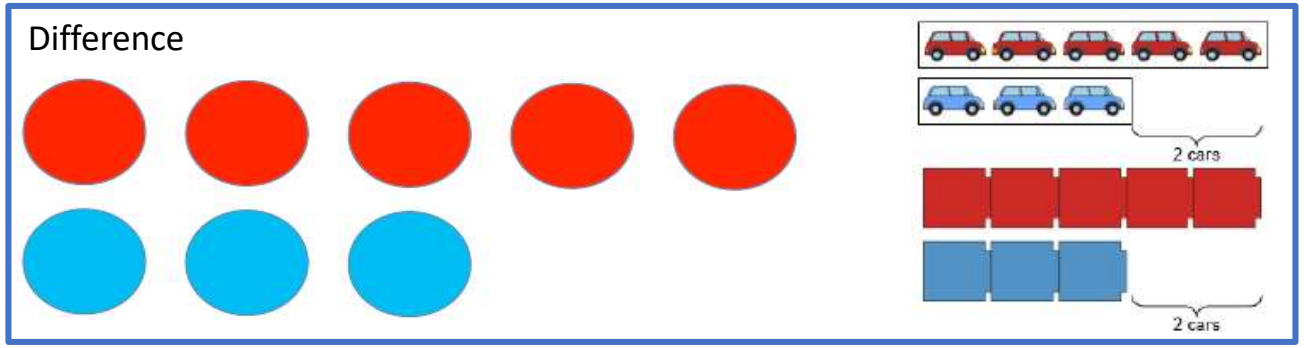
Partitioning



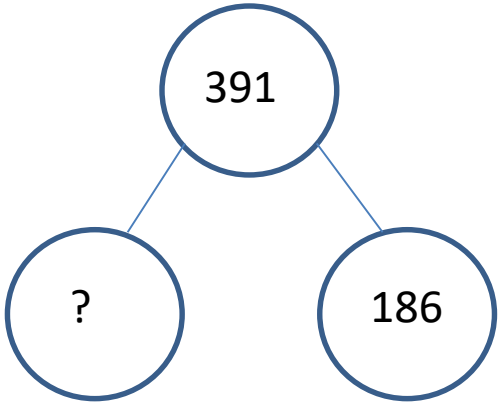
Reduction



Difference



Conceptual variation; different ways to ask children to solve 391-186



391	
?	186

Raj spent £391, Timmy spent £186. How much more did Raj spend?

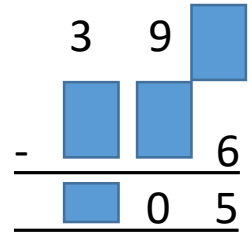
Calculate the difference between 391 - 186.

391
-186
____

□ = 391 - 186

What is 186 less than 391?

Missing digit calculations



It is important to use conceptual variation in order for the children to deepen their understanding of the mathematical structure.

Children will find different ways easier or harder to understand than others. We encourage children to work towards looking for the most efficient methods once they have conceptual understanding of the maths.

EYFS Objectives

30-50 months:

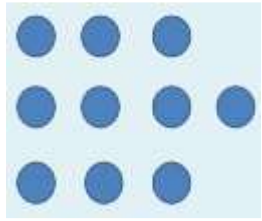
- Separates a group of three or four objects in different ways, beginning to recognise that the total is still the same.

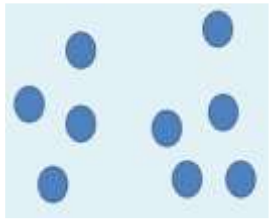
40-60 months:

- Finds the total number of items in two groups by counting all of them.
- Says the number that is one more than a given number.
- Finds one more or one less from a group of up to five objects, then ten objects.
- In practical activities and discussion, beginning to use the vocabulary involved in adding and subtracting.

Pupils must be provided with opportunities to develop their skills so that they are able to count reliably, including one to one correspondence and count on from a given number.
Pupils must be provided with many opportunities to **subitise** numbers so they are equipped to calculate rather than count as they progress through their learning.
Pupils should be given the opportunity to count out sets of objects and then combine them to make a total.

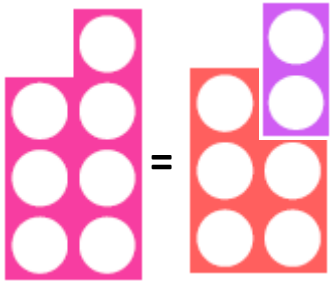
Subitising
Show the dots for 3 seconds.
How many dots can you see?
How did you see them?
Did you calculate?
E.g. 9 + 1 and 4 + 5

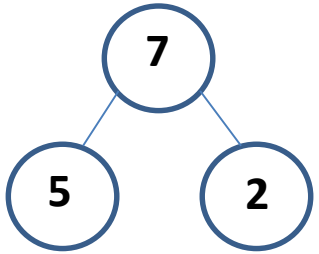


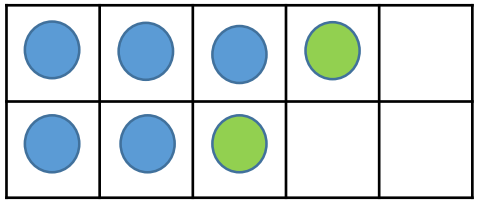


In EYFS pupils should be developing their concept of the number system through the use of concrete materials and pictorial representations. They should experience practical calculation opportunities using a wide variety of equipment, e.g. role play, outdoor play, counters, cubes, numicon, ten frames etc. They develop ways of recording calculations using pictures, etc.

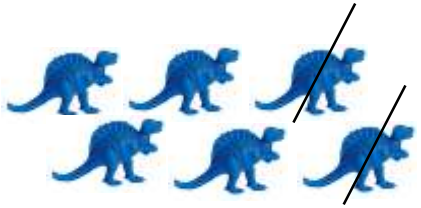
Pupils should recognise different combinations of making single digit numbers using part whole, numicon and tens frame.
E.g. 7 can be made as:

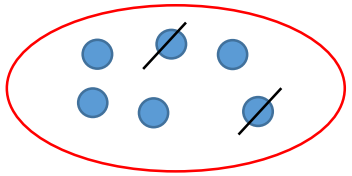






After pupils have recognised different ways of making numbers they should use this number bond knowledge to help with subtraction facts.
Children should use concrete materials to start counting back in order to solve subtraction problems.

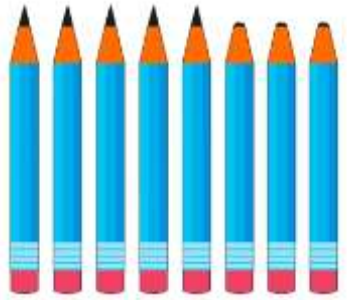




Y1 Objectives

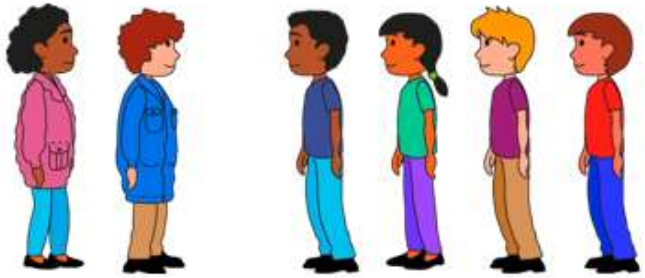
- Number bonds and related subtraction facts within 20.
- Subtract 1 and 2 digit numbers within 20, including zero.

Start with expressions (no = sign)



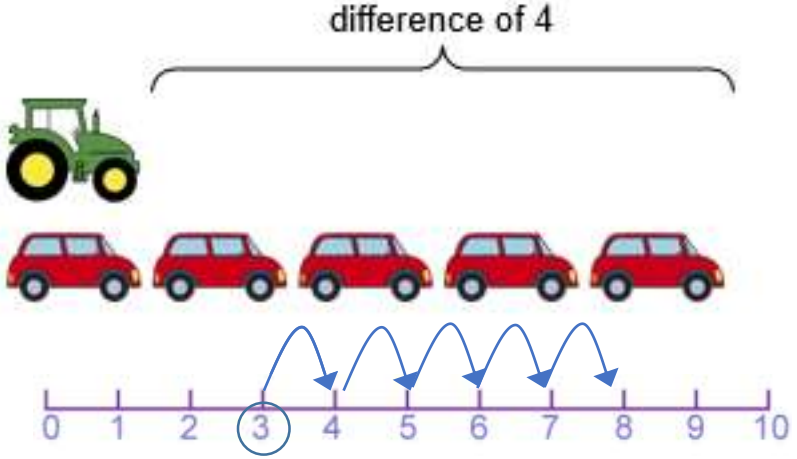
8 - 3

Move on to equations (has = sign)



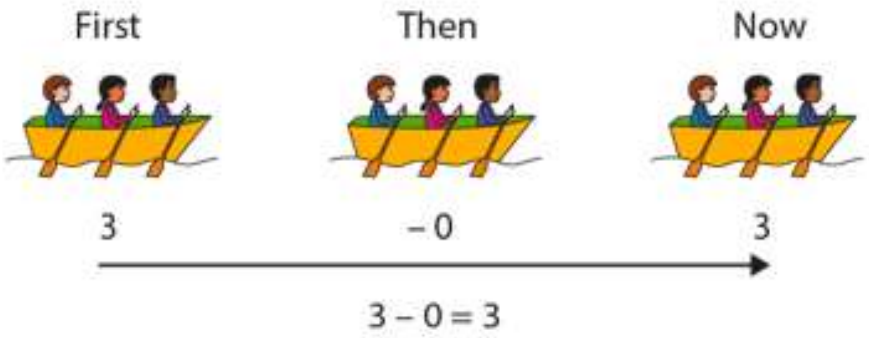
6 – 2 = 4

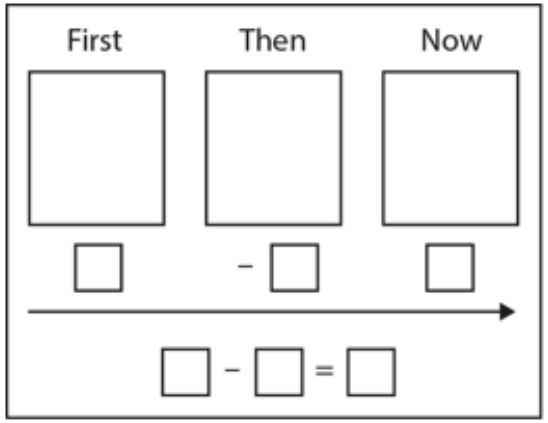
Difference



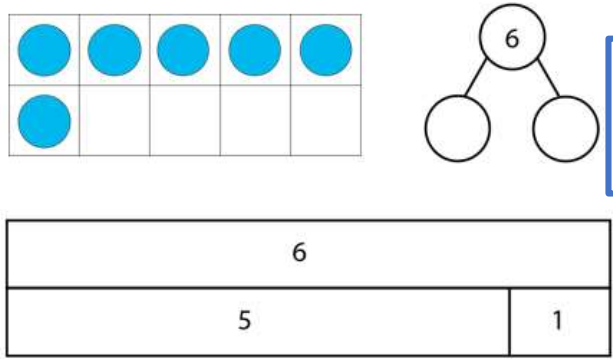
8 - 3 = 5

Reduction





Use part whole diagram (include zero)



Partitioning single digit numbers

Teacher to use the bar model in summer term

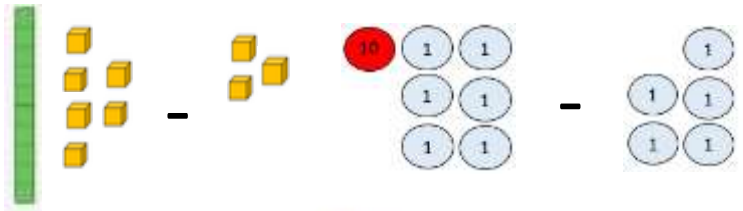
Key skills:
Bonds within 10
Bonds from 10
Subtracting 0 and 1 from a number

Y2 Objectives

- Subtract facts to 20 and related facts to 100.
- 2 digit number - 1 digit number.
- 2 digit number – multiple of 10.
- 2 digit number – 2 digit number (where sum is less than 100).

2 digit number – 1 digit number
Use numbers in context

What does each number represent?



At **first** Fiona had saved £34 and **then** she spent £5. How much does she have **now**?

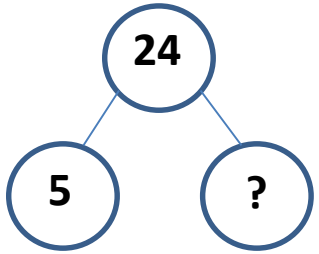
2 digit number + multiple of 10

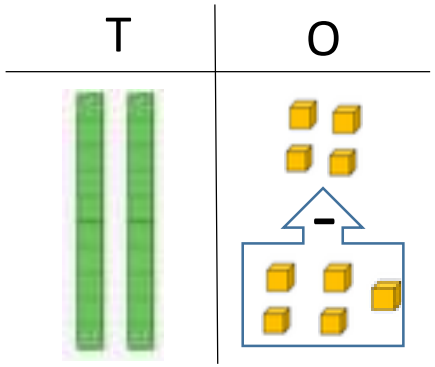
What's the same? What's different?

Tens 10s	Ones 1s
10 10 10 10	1 1 1

43 - 20 = 23

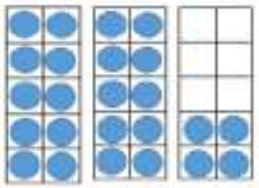
Children to use the part whole and bar model





24	
19	?

2 digit number - 2 digit number



24 - 5

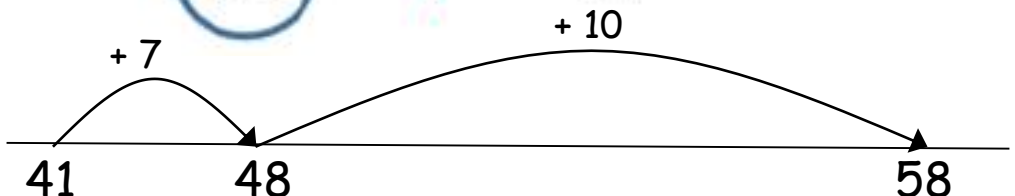
24 - 4 - 1 = 19

58 - 17

Keep the first number whole

58 - 10 - 7

48 - 7 = 41



Teacher to use columnar methods that do not cross the tens boundary in summer term, using concrete resources to support.

T	O
50	8
- 10	7
40 +	1 = 41

Tens 10s	Ones 1s
10 10 10 10 10	1 1 1 1 1 1

Key skills:
2 digit number - 1 digit number
2 digit number - multiple of 10

Y3 Objectives

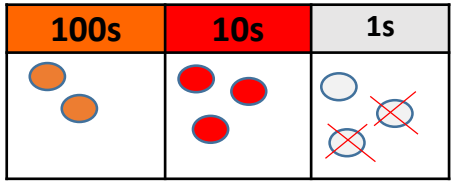
Mentally:
- 3 digit number - 1 digit number.
- 3 digit number - multiple of 10.
- 3 digit number - multiple of 100.

Written Calculation (using column method):
- 3 digit number - 1 digit number.
- 3 digit number - 2 digit number.
- 3 digit number - 3 digit number.

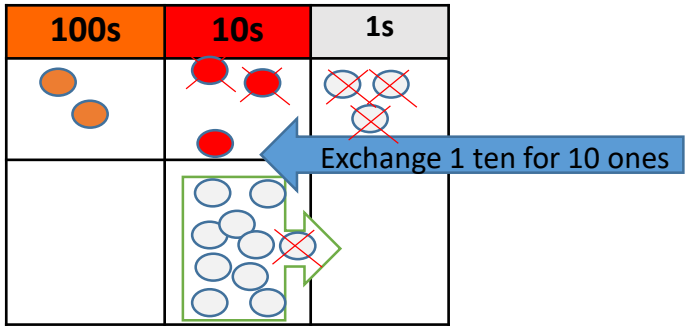
Key skills prior to this stage :
2 digit number - 1 digit number
2 digit number - multiple of 10
Column method using concrete and pictorial

Mental strategies based on experiences using concrete and pictorial representation previously:
Count on/find the difference
If the numbers are close together
203 – 199 =
199 + ____ = 203
Round and adjust
If subtracting a 'near tens' number
64 -19 =
64 - 20 = 44 + 1 = 45
Count back
If subtracting a single digit or multiple of 10
342 – 5 = or 257 – 40 =

3 digit number + 1 digit number



233 – 2 = 231

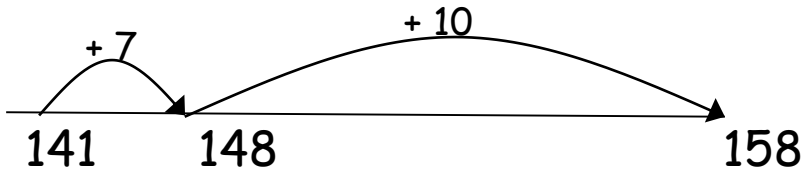


233 – 24 = 209

Subtraction is not commutative

3 digit number - 2 digit number

Finding the difference using a number line



300	50	8	
-	10	7	
300	40	1	= 341

3 digit number - 3 digit number

300	50	8	
- 200	10	7	
100	40	1	= 141

	30	11	
300	40	1	
- 100	20	3	
200	10	8	= 218

Problem solving

745	
498	?

Some numbers are given.
1 3 4 5 7 8
Use the numbers to form a two 3 digit numbers.
Subtract the numbers to get the greatest answer.

Y4 Objectives

- Numbers up to 4 digits.
- Estimate and use inverse operations.
- Solve two step subtraction problems, choosing the appropriate method.

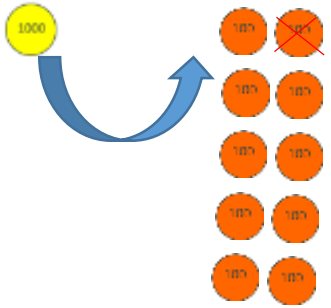
Key skills prior to this stage :
2 digit number - 1 digit number
2 digit number - multiple of 10
Column method

4 digit number + 3 digit number with exchanging

1000s	100s	10s	1s
1000 1000	100 100 100 100	10 10	1 1 1

2423 - 512 = 1911

1000s	100s	10s	1s
1000	100 100 100 100	10 10	1 1

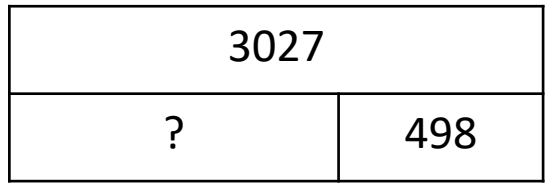


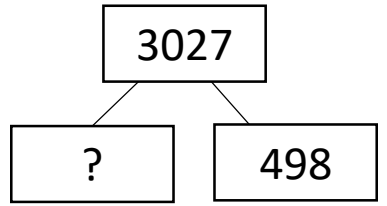
Teacher to use columnar methods with addition using concrete resources to support until children are secure before using compact method.

TH	H	T	O
1000	1400		
~~2000~~	~~400~~	20	3
-	500	10	2
1000	900	10	1 = 1911

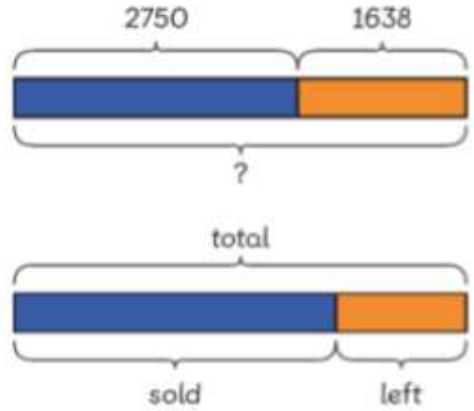
$$\begin{array}{r} {}^{3}\cancel{4}{}^{1}6{}^{2}3{}^{1}5 \\ -\ 2\,7\,1\,6 \\ \hline 1\,9\,1\,9 \end{array}$$

Children to use part whole and bar model to develop estimation and number sense.

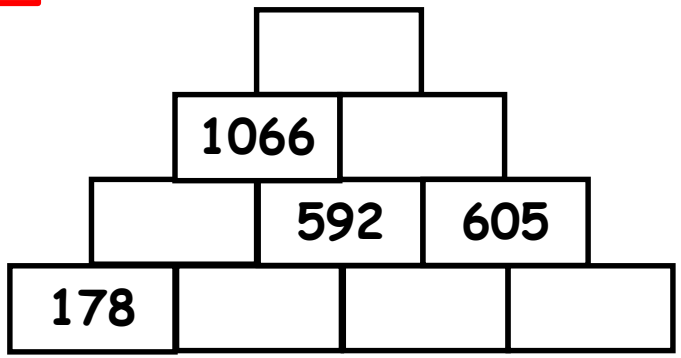




Problem solving



A baker made 2,750 chocolate cookies and 1,638 vanilla cookies. He sold 3,198 cookies altogether. How many cookies did he have left?



Y5 Objectives

- Numbers with more than 4 digits
- Subtract mentally with increasingly larger numbers
- Use rounding to check.
- Solve multi-step problems, choosing appropriate method.
- Decimal numbers

Subtract numbers with more that 4 digits

$$\begin{array}{r} {}^{3}4\,{}^{1}6\,{}^{2}3\,{}^{1}5 \\ -\ 2\,7\,1\,6 \\ \hline 1\,9\,1\,9 \end{array} \qquad \begin{array}{r} 5\,{}^{8}9\,{}^{9}0\,{}^{1}2\,1 \\ -\ 4\,3\,\ 8\,\ 9\,1 \\ \hline 1\,5\,\ 1\,\ 3\,0 \end{array}$$

Decimal numbers

$$\begin{array}{r} {}^{6}7\,{}^{1}1.\ 8 \\ -\ 3\,4\ .\ 5 \\ \hline 3\,7\ .\ 3 \end{array} \qquad \begin{array}{r} 5\,7.\,{}^{2}3\,{}^{1}0 \\ -\ \ 6.\ 0\,8 \\ \hline 5\,1.\ 2\,2 \end{array}$$

- Vary the number of digits in the number,
  eg, 5 digit number - 3 digit number

  13,065 - 577 =
- Subtract more than two numbers.

  163,254 - 345 - 12,698 =
- Write = sign in different positions.

  ? = 4277 - 656
- Balanced equations.

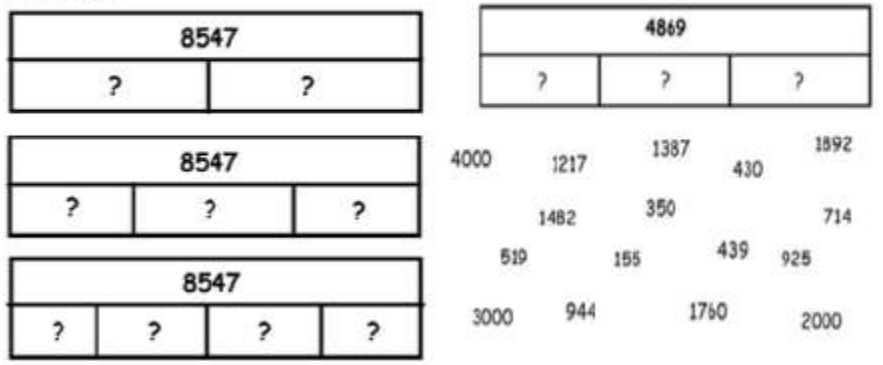
  16,948 - ? = 11,036 - 158

Address difficult points- zero as a place holder

Children to use part whole and bar model to develop estimation and number sense.

375.5	
?	14.3

Solve the following. Find two examples for each bar model.



Problem Solving

Which is easier to calculate?
59,027 – 23,359 or 53,279 – 29, 035
Explain your reasoning.

Y6 Objectives

- Numbers with more than 4 digits.
- Decimal numbers.
- Multi-step problems.

- Vary the number of digit in the number.

  15.743 – 214.9=

- Subtract more than two numbers.

  143,524 – 12,345 – 1,698 =

- Missing boxes.

  _____ - 200 = 23, 837

- Balanced equations.

  231.64 - ? = 254.2 - 0.58

- Subtracting fractions.

  $\frac{5}{6} - \frac{1}{4} =$

Children to use part whole and bar model to develop estimation and number sense.

487.3	
?	2.9

Problem Solving

A four bedroom house cost £450,000.
A three bedroom house costs £199,000 less.
How much does the three bedroom house cost?
What method did you use to find the answer?

Multi-step problems

Find the difference between A and B