

*Year 3*

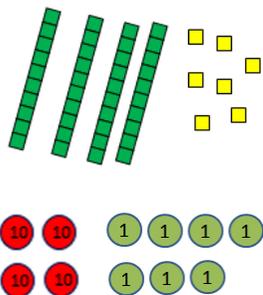
*Addition*

**Mental Strategies**

Children should continue to count regularly, on and back, now including multiples of 4, 8, 50, and 100, and steps of 1/10.

The number line should continue to be used as an important image to support thinking, and the use of informal jottings should be encouraged. This will help to develop children's understanding of working mentally. Children should continue to partition numbers in different ways. They should be encouraged to choose the mental strategies which are most efficient for the numbers involved, e.g. Add the nearest multiple of 10, then adjust such as  $63 + 29$  is the same as  $63 + 30 - 1$ ; counting on by partitioning the second number only such as  $72 + 31 = 72 + 30 + 1 = 102 + 1 = 103$

Manipulatives can be used to support mental imagery and conceptual understanding. Children need to be shown how these images are related eg. What's the same? What's different?



**Vocabulary**

*Subtraction*

**Mental Strategies**

Children should continue to count regularly, on and back, now including multiples of 4, 8, 50, and 100, and steps of 1/10.

The number line should continue to be used as an important image to support thinking, and the use of informal jottings should be encouraged. Children should continue to partition numbers in difference ways. They should be encouraged to choose the mental strategies which are most efficient for the numbers involved, e.g. counting up (difference, or complementary addition) for  $201 - 198$ ; counting back (taking away / partition into tens and ones) for  $201 - 12$ .

Calculators can usefully be introduced to encourage fluency by using them for games such as 'Zap' [e.g. Enter the number 567. Can you 'zap' the 6 digit and make the display say 507 by subtracting 1 number?]

The strategy of adjusting can be taken further, e.g. subtract 100 and add one back on to subtract 99. Subtract other near multiples of 10 using this strategy.

**Vocabulary**

Hundreds, tens, ones, estimate, partition, recombine, difference, decrease, near multiple of 10 and 100, inverse, rounding, column subtraction, exchange

See also Y1 and Y2

**Generalisations**

Noticing what happens to the digits when you count in tens and hundreds.  
Odd - odd = even etc (see Year 2)

*Multiplication*

**Mental Strategies**

Children should continue to count regularly, on and back, now including multiples of 4, 8, 50, and 100, and steps of 1/10.

The number line should continue to be used as an important image to support thinking, and the use of informal jottings and drawings to solve problems should be encouraged.

Children should practise times table facts

$3 \times 1 =$   
 $3 \times 2 =$   
 $3 \times 3 =$

**Vocabulary**

partition  
grid method  
inverse

**Generalisations**

Connecting  $\times 2$ ,  $\times 4$  and  $\times 8$  through multiplication facts

Comparing times tables with the same times tables which is ten times bigger. If  $4 \times 3 = 12$ , then we know  $4 \times 30 = 120$ . Use place value counters to demonstrate this.

When they know multiplication facts up to  $\times 12$ , do they know what  $\times 13$  is? (i.e. can they use  $4 \times 12$  to work out  $4 \times 13$  and  $4 \times 14$  and beyond?)

*Division*

**Mental Strategies**

Children should count regularly, on and back, in steps of 3, 4 and 8. Children are encouraged to use what they know about known times table facts to work out other times tables. This then helps them to make new connections (e.g. through doubling they make connections between the 2, 4 and 8 times tables).

Children will make use multiplication and division facts they know to make links with other facts.

$3 \times 2 = 6$ ,  $6 \div 3 = 2$ ,  $2 = 6 \div 3$   
 $30 \times 2 = 60$ ,  $60 \div 3 = 20$ ,  $2 = 60 \div 30$

They should be given opportunities to solve grouping and sharing problems practically (including where there is a remainder but the answer needs to given as a whole number)

e.g. Pencils are sold in packs of 10. How many packs will I need to buy for 24 children?

Children should be given the opportunity to further develop understanding of division (sharing) to be used to find a fraction of a quantity or measure.

[Use children's intuition to support understanding of fractions as an answer to a sharing problem.](#)

3 apples shared between 4 people =  $\frac{3}{4}$



Hundreds, tens, ones, estimate, partition, recombine, difference, decrease, near multiple of 10 and 100, inverse, rounding, column subtraction, exchange  
See also Y1 and Y2

**Generalisations**

Noticing what happens to the digits when you count in tens and hundreds.

Odd + odd = even etc (see Year 2)

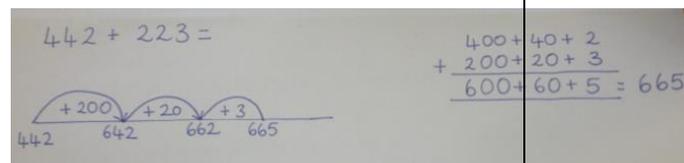
Inverses and related facts – develop fluency in finding related addition and subtraction facts.

Develop the knowledge that the inverse relationship can be used as a checking method.

**Key Questions**

What do you notice? What patterns can you see?

When comparing two methods alongside each other: What's the same? What's different? Look at this number in the formal method; can you see where it is in the expanded method / on the number line?

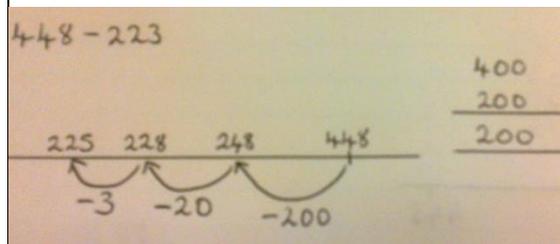


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When comparing two methods alongside each other: What's the same? What's different? Look at this number in the formal method; can you see where it is in the expanded method / on the number line



**Some Key Questions**

What do you notice?

What's the same? What's different?

Can you convince me?

How do you know?

**Vocabulary**

See Y1 and Y2

inverse

**Generalisations**

Inverses and related facts – develop fluency in finding related multiplication and division facts.

Develop the knowledge that the inverse relationship can be used as a checking method.

**Some Key Questions**

Questions in the context of money and measures that involve remainders (e.g. How many lengths of 10cm can I cut from 81cm of string? You have £54. How many £10 teddies can you buy?)

What is the missing number?  $17 = 5 \times 3 +$

—

— =  $2 \times 8 + 1$