

Addition

Year 3

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.

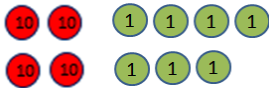
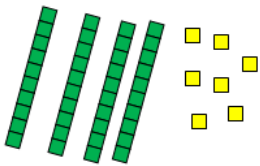
They should be encouraged to choose the mental strategies which are most efficient for the numbers involved, e.g.

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

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.

Year 4

Mental Strategies

Children should continue to count regularly, on and back, now including multiples of 6, 7, 9, 25 and 1000, and steps of 1/100.

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

Children should continue to partition numbers in different ways.

They should be encouraged to choose from a range of strategies:

- Counting forwards and backwards: $124 - 47$, count back 40 from 124, then 4 to 80, then 3 to 77
- Reordering: $28 + 75$, $75 + 28$ (thinking of 28 as $25 + 3$)
- Partitioning: counting on or back: $5.6 + 3.7$, $5.6 + 3 + 0.7 = 8.6 + 0.7$
- Partitioning: bridging through multiples of 10: $6070 - 4987$, $4987 + 13 + 1000 + 70$
- Partitioning: compensating – $138 + 69$, $138 + 70 - 1$
- Partitioning: using 'near' doubles - $160 + 170$ is double 150, then add 10, then add 20, or double 160 and add 10, or double 170 and subtract 10
- Partitioning: bridging through 60 to calculate a time interval – What was the time 33 minutes before 2.15pm?
- Using known facts and place value to find related facts.

Vocabulary

add, addition, sum, more, plus, increase, sum, total, altogether, double, near double, how many more to make..? how much more? ones boundary, tens boundary, hundreds boundary, thousands boundary, tenths boundary, hundredths boundary, inverse, how many more/fewer? Equals sign, is the same as.

Generalisations

Investigate when re-ordering works as a strategy for subtraction. Eg. $20 - 3 - 10 = 20 - 10 - 3$, but $3 - 20 - 10$ would give a different answer.

Some Key Questions

What do you notice?

What's the same? What's different?

Can you convince me?

How do you know?

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?

